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COMPARATIVE RESULTS IN PROTAMINE-ZINC AND UNMODIFIED INSULIN THERAPY*

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VARIOUS methods of insulin administration have been tried to simulate more closely nature's continuously regulated secretion of insulin. These methods are: (1) injection as a suspension or emulsion in oil (Leyton, 1929), (2) injection with a vasoconstricting substance (Deaconess Hospital, Boston) and (3) injection as a sparingly soluble compound. After experiments with various protamines, Hagedorn[1] and his associates at the Steno Memorial Hospital, Copenhagen, developed a method of combining regular insulin hydrochloride with a protamine derived from the sperm of a salmon, a mixture which has its minimum solubility point at a hydrogen ion concentration of 7.3, or at about the reaction of the blood serum. Protamine insulin was first available in two vials, one containing a mixture and the other a buffer which, when injected into the first, brought it to the proper hydrogen ion concentration and caused a cloudy suspension to appear; this was injected subcutaneously after inverting the vial several times to insure an equal mixture.

It was found that the addition of certain metals to the mixture further prolonged its action. Hence, trial packages were sent out containing calcium or zinc in addition. Rabinowitch[2] in Montreal carried out extensive experiments in making zinc-content determinations showing that zinc was present in normal insulin and that adding more zinc delayed the action of insulin. He also showed that zinc added to protamine further prolonged its action and increased the sensitivity of the individual to insulin. Universal clinical trial has proved the zinc combination to be superior. Recently there has appeared a new, already mixed protamine zinc compound with a stability of 6 months or over. All cases in this series on which data are presented were treated with protamine-zinc insulin.

As this product contains zinc, which is a toxic metal, we have inquired into the possibility of zinc poisoning, and find that various investigators‡ have shown that the body is capable of excreting up to 2 mg. of zinc a day in the urine and greater quantities by bowel. Inasmuch as this insulin contains only 1 mg. in 500 units, there does not seem to be any danger of the accumulation of sufficient quantities of zinc in the body to cause toxic symptoms. So far, to the best of our knowledge, no definite case of zinc poisoning from protamine-zinc insulin has been reported.

As regards the possibility of allergic reactions to the protamine itself, the laboratory workers of Eli Lilly and Company‡ report that they have been unable to find any greater frequency of incidence of such reactions than there has been in the past to regular insulin. Joslin,[3] however, has mentioned 2 cases which he has found to be allergic to protamine.

OUTLINE OF STUDY

Twenty-three patients with diabetes mellitus were studied under controlled hospital conditions to compare the dosages, diets and hypoglycemic reactions of protamine-zinc and regular insulin. On 17 of these patients we were able to secure data as described below. They were divided into two groups, the first and largest receiving level diets as commonly used in diabetic therapy at the Rhode Island Hospital and the second receiving the ladder high carbohydrate, low calorie diet. The minimum dosage of regular insulin required for regulation was first determined in the usual manner for each patient. A shift to protamine-zinc insulin was then made, and the minimum required dosage recorded. It was usually impossible to allow ample time after regulation with regular insulin before changing to protamine-zinc insulin, since the patients refused to remain in the hospital for a lengthy period. Urine sugar determinations were made daily every 2 hours by Benedict's qualitative method and recorded by their reduction colors from negative to 4+. On days when it was desirable to know blood sugar levels and on days when patients were considered regulated and before changing the type of insulin, blood glucose determinations were made on samples taken at 9 and 11 a. m. and 2, 5 and 10 p. m. Thus, correlation of blood and urine sugar curves was possible and a rough idea of the renal threshold was obtained; at the same time, patients who refused five blood sugars daily were satisfied, which would have been impossible with the hospi-

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‡Personal communication: Eli Lilly and Company Research Laboratories.

tal routine. Samples were taken in tubes containing sodium fluoride to prevent alteration of blood glucose values overnight. Fasting morning blood sugars were avoided owing to the prevalent low values at this time due to the constant action of protamine-zinc insulin during the night in the absence of food. Blood analysis was done by the Benedict 1931 method, which measures only the true glucose content. These normals are lower than by the Folin-Wu method and by other methods commonly in use, being between 65 and 95 mg. per 100 cc. of blood. The average renal threshold above which the urine shows sugar is considered to be about 150 mg. of glucose per 100 cc. of blood. The patient was considered to be regulated when his bihourly urines showed negative to 1+ with an occasional 2+ sugar, depending upon the severity of the diabetic and the general idea of his renal threshold as suggested by the blood glucose curve on that day. The time the meals were ingested and insulin administered, together with the carbohydrate distribution in the meals, was recorded in relation to the blood and urine sugar curves. The patients' ages ranged from 11 to 68 years; all happened to be women.

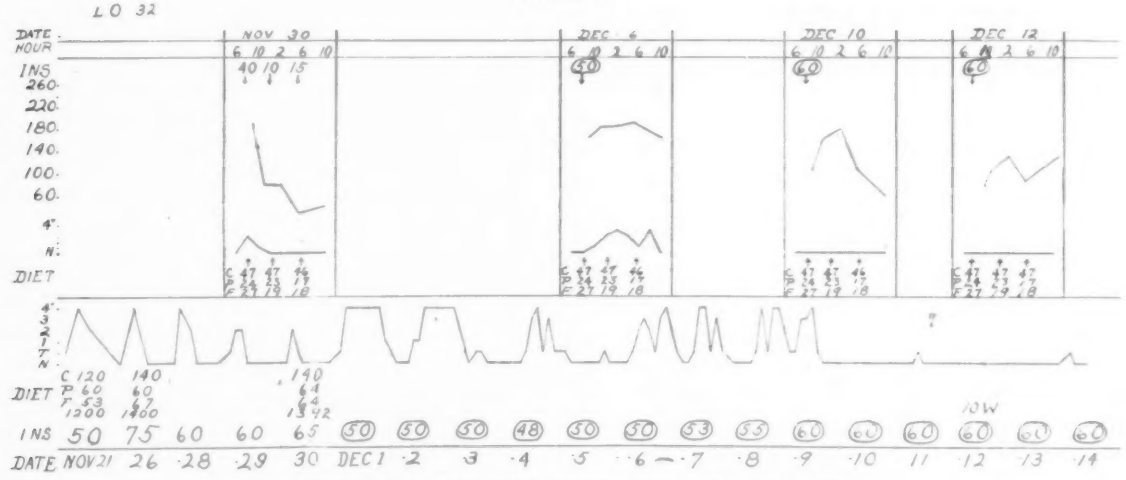
INDICATIONS

The indications for the use of protamine-zinc insulin have been given by Joslin[3] as follows: (1) newly discovered diabetics, (2) those with high fasting blood sugars, (3) those requiring many doses of regular insulin a day, (4) those who are abnormally sensitive to insulin as manifested by frequent reactions with glycosuria, (5) patients with hepatomegaly, (6) patients with lipodystrophy, (7) mild diabetics and (8) cardiac patients with diabetes. We believe, however, that protamine-zinc insulin is applicable to almost any diabetic, and that it should be used in order to give every patient the advantage of the better control that it affords.

DOSAGE

When the minimum required dosage of regular insulin was known, a shift was made to protamine-zinc insulin. It was our experience that many patients whose required amount of regular insulin was in the neighborhood of 40 to 70 units daily could be regulated with 10 to 55 per cent less insulin by using protamine-zinc insulin. Consequently, the initial dose of protamine-zinc insulin was determined by subtracting 15 to 20 units from the regular dosage, this being given as one morning dose. Almost invariably on the first day of the change 3 to 4+ urine sugars would appear. We believe that one should refrain from raising the dosage for 2 to 4 days, since it takes this length of time for protamine-zinc insulin to swing into its full effect. If the patient is not then regulated, the dosage may be raised 3 or 4 units at a time, this amount often being sufficient to distinguish between regulation and slight hypoglycemic reactions. No apparent harm results from the glycosuria during this transitory stage. The urine should be watched for acetone at this time, and if it appears, small doses of supplementary regular insulin may be carefully given and withdrawn as the protamine comes into effect. In the event that no sugar appears in the urine on the day of the change, we believe that the dosage should be reduced 3 to 5 units daily un-

CHART 1.



Lower half of chart shows bihourly urine sugar curve from 6 a. m. to 10 p. m. Blank squares represent diet unchanged over last recording. An encircled figure means that protamine-zinc insulin was used. The top half of the chart shows urine sugar curve and diet distribution in relation to blood glucose curve on selected days.

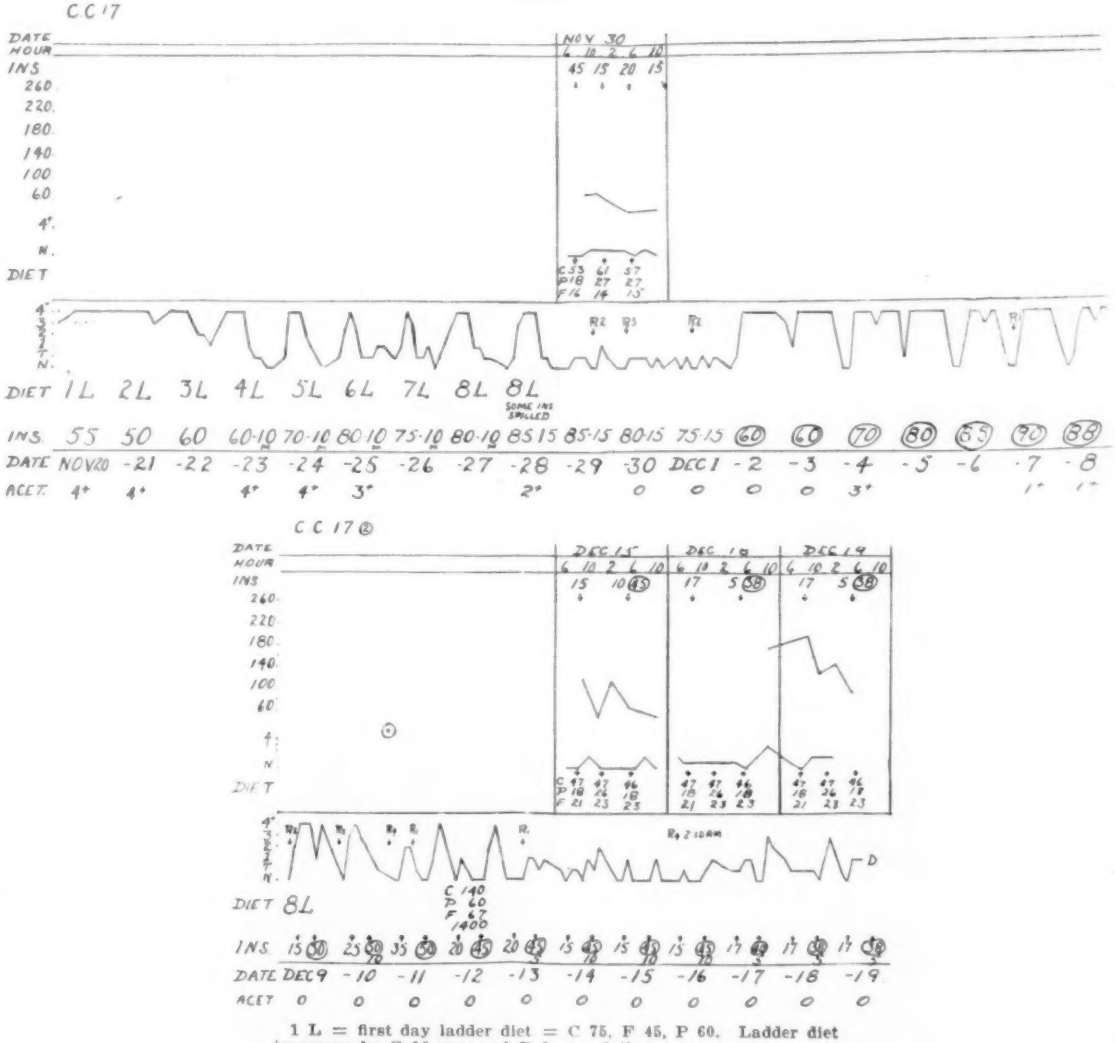
Note: (1) the expected glycosuria after change to protamine on December 1; (2) the effect gained with a 5 unit raise on December 8 with 1 day's delay; (3) the leveling off of blood glucose curves after change to protamine-zinc insulin.

til traces or 1+ urine sugars appear, if the threshold is normal. Otherwise there is danger of hypoglycemic reactions 3 to 4 days hence when the full effect is gained.

In cases where the required regular insulin was higher, the same procedure was carried out except that the initial protamine dosage was taken as 5 to 10 units below that of the regular dosage. Richardson and Bowie[4] state that, in their experience, patients taking over 50 units of regular insulin a day require approximately the same dosage of protamine-zinc insulin. In our cases, the greatest average reduction was in the group taking between 40 and 70 units of insulin, and was 24.7 per cent. There were 12 patients in this group as compared with 5 whose initial dosage was above 70 and whose average reduction was 16.7 per cent (chart 3).

In difficult cases that refused to be regulated by one morning dose, one of three additional measures was taken. (1) Supplementary regular insulin was given at the time indicated by the high point in the bihourly sugar curve without relation to meals. If a patient was regulated on protamine-zinc insulin and later developed an infection with subsequent glycosuria, the protamine-zinc insulin was left intact, and the regular insulin was given according to test. (2) In several cases, morning hypoglycemic reactions were controlled by giving a 10 p. m. or midnight feeding of a glass of milk and two Uneeda crackers. (3) By a shift in carbohydrate distribution it is possible to move the low point of urine and blood sugar curves to a time when meals compensate. This was attempted unsuccessfully in 2 uncontrollable patients, but the measure was not found necessary in any of the other cases. Other methods of dosage have been used by different investigators. Hagedorn's[1] original plan was to give protamine-zinc insulin at night and regular

CHART 2.



1 L = first day ladder diet = C 75, F 45, P 60. Ladder diet increases by C 16 gm. and P 3 gm. daily.
8 L = C 187, F 45, P 81. M = midnight dose.
R_1-R_4 = grades of hypoglycemic reactions.
N.B. Patient was discharged with glycosuria due to low renal threshold, suggested by blood glucose curves.

insulin in the morning. Caution should be exercised in regard to morning reactions in these cases. Another method[4] is to give five sixths of the dose at 7:30 a. m. and one sixth at 7:30 p. m.

We have considered each patient as an individual problem and have administered insulin as indicated by the urine sugar curve. Our average dosage for regular insulin was 66.9 units daily, and for protamine insulin, 52.6 units daily on the same patients. We believe that the average case can be regulated on one dose of protamine-zinc insulin in the morning (chart 3).

We have consistently used bihourly urine examinations. We believe that this might be advisable for more general use in patients who are difficult to control, as the method shows postprandial glycosuria, which is otherwise missed with antecibum urines, and offers a guide for the better arrangement of the insulin dosage. For example, it has been of great assistance in the following case:

C. C., a 17-year-old pregnant female and a known diabetic for 8 years, was admitted in second degree coma. She was brought out of the coma in the usual manner with regular insulin and was then put on the ladder plan of diet to determine the amount of regular insulin necessary for her control. After maintaining her on the eighth day of the ladder scale for 4 days, it was found to be impossible to keep her urine sugar-free on any convenient regime with regular insulin without causing her to have severe reactions. Accordingly she was transferred to protamine-zinc insulin, but when sufficient dosage was given to render her urine sugar-free, she had morning reactions. From the evidence shown in her bihourly urines it seemed practicable to give her an evening dose of protamine-zinc insulin and to supplement it with smaller doses of regular insulin. This was done, and gave quite satisfactory results (chart 2).

This case also demonstrates the method of mixed regime, employing supplementary regular insulin, which is very useful in difficult cases. In addition it re-emphasizes the fact that every case is a separate problem, with protamine-zinc insulin as well as with regular insulin, and that protamine-zinc insulin is not a panacea.

REACTIONS

Our total number of reactions while regulating patients on regular insulin was 14 as compared with 16 with protamine-zinc insulin. At times, in an attempt to regulate a patient rapidly on account of his anxiety for discharge, we no doubt obtained reactions which would have been avoidable had we been able to proceed more slowly. In only 1 case did we obtain a marked reaction while protamine-zinc insulin was being used. This was a patient who was getting 35 units of supplementary regular insulin at the time, owing to the fact that she was a very severe diabetic and was pregnant (chart 2).

One 12-year-old child had morning reactions characterized by great difficulty in arousing her from sleep. On awakening she behaved in a very silly manner and had thick speech and dilated pupils. The other reactions mentioned above were extremely mild, and indeed might not have been noted at all but for close observation. They consisted of mild weakness or nervousness of insufficient severity to incapacitate the patient. There was a marked prevalence of reactions after midnight and in the morning, although they might occur at any time.

Such reactions are easily controlled by a meal or by orange juice. Caution should be exercised, as they often appear as a series, that is, prolonged, so that if one is observed, another may be expected shortly afterward or later in the day. Joslin[3] believes that reactions are more likely to occur if protamine is given in two doses.

Our findings have corroborated those of other investigators in that the reactions with protamine-zinc insulin are usually mild. This observation has been explained in the literature by two theories: (1) Protamine-zinc insulin is liberated and absorbed slowly over a prolonged period of time. This fact may prevent a sudden depletion of dextrose in the central nervous system, which has been suggested as a cause of the symptoms of the severe hypoglycemic reactions without low blood sugar values occasionally encountered with regular insulin. Freund and Adler[5] of the Harper Hospital in Detroit suggest that the slow liberation of insulin from the protamine-zinc combination may permit the production of dextrose from the intermediary metabolism of protein and fat, so that the dextrose stores in the body are not suddenly depleted. (2) The slow liberation of the insulin in the body permits an adrenalin action, which releases sufficient glucose from the glycogen stores to combat the impending hypoglycemia. Rabinowitch[6] shows an increase in the blood pressure corresponding to the reduction in the blood sugar level after the administration of protamine-zinc insulin to a normal individual.

DIETS

Diets were kept unchanged during the regulations on both types of insulin. For the most part, the level house diets in use at Rhode Island Hospital were given. Owing to the remarkable results obtained by Rabinowitch[2] in using protamine-zinc insulin with high carbohydrate, low calorie ladder diets, a similar diet was used on 6 patients. It was discontinued because it was difficult for the poorer patients to supply themselves with such a diet, and because better regulation was secured with less insulin with level diets of equivalent caloric, lower carbohydrate and higher fat values.

The discrepancy between our results and Rabinowitch's may well be explained by the fact

that our cases have been on this diet for only a short period of time, and are probably in a period of readjustment, whereas his cases were taken from a group that had been maintained on a high carbohydrate, low fat diet for a prolonged period of time. The inherent theory of this diet is that over a long period of time a high carbohydrate intake with a small amount of fat will improve the glucose tolerance of the individual.

FAILURES

One failure was encountered. This was a 60-year-old severe diabetic of long standing who could not be regulated on over 500 units of regular insulin daily. With 300 units of protamine-zinc insulin and supplementary regular insulin, she is still showing 4+ urine sugars and an elevated blood glucose. Studies to detect insulin in the urine, made in an attempt to prove her an "insulin waster," failed. There is incomplete evidence that her blood contains insulin inhibitory factors, possibly with an endocrine background. She is still under observation, and a complete report of her case will be given by one of us at a later date.

CHART 3.

Case	Regular Insulin: Injection	Regular Insulin: Daily Dose	Regular Insulin: Reactions	Protamine-Zinc Insulin: Injection	Protamine-Zinc Insulin: Daily Dose	Protamine-Zinc Insulin: Reactions	Units Reduced	Per Cent of Regular Reduced
1. C. C.	4	90	3	3	60	7	30	33.3%
2. M. L.	3	50	0	1	25	1	25	50
3. A. B.	3	108	0	1	90	0	18	16.6
4. L. O.	3	65	1	1	60	2	5	7.7
5. G. L.	3	69	1	1	53	1	16	23.2
6. A. W.	3	110	4	1	78	1	32	29
7. M. M.	4	95	0	1	90	2	5	5.2
8. E. T.	3	50	0	1	45	0	5	10
9. M. Mc.	3	50	0	1	65	1	+15	+30
10. A. A.	3	75	0	1	80	0	+ 5	+ 6.6
11. N. P.	3	54	0	1	45	0	9	16.6
12. R. G.	3	40	1	1	18	0	22	55
13. A. P.	2	57	4	1	48	1	9	15.8
14. P. D.	3	47	0	1	32	0	15	32
15. A. W.	3	60	0	1	27	0	33	55
16. L. C.	3	60	0	1	48	0	12	20
17. F. B.	3	57	0	1	30	0	27	47.4
Totals	52	1137	14	19	894	16	243	...

SUMMARY

	Regular Insulin	Protamine-Zinc Insulin	Reduction
Average units per patient per day	66.9	52.6	14.3
Average injections per patient per day	3.06	1.12	1.94

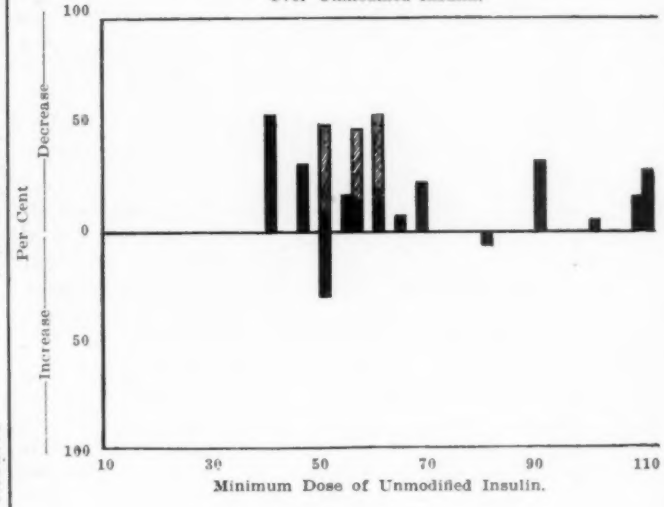
Per cent reduction of units of insulin for the group: 21.4%

ADVANTAGES

The advantages of protamine-zinc insulin are two in number: (1) *It is convenient.* In the average case it permits the diabetic patient to control his hyperglycemia by one injection of insulin a day instead of two or three, as has usually been necessary with regular insulin. (2) *It gives better control.* The blood sugar is maintained at a more constant level over the whole 24 hours on the same or a lower number of units of insulin a day by its slow and prolonged action. This eliminates the wide variation encountered with regular insulin.

CHART 4.

Variations in Per Cent of Protamine-Zinc Over Unmodified Insulin.



CONCLUSIONS

We feel that protamine-zinc insulin offers a greatly improved method for the control of diabetics, and may be the means of preventing many of the present complications of diabetes. It may be used both in hospitalized and ambulatory cases with the following precautions:

(1) Owing to its slow action, one must not increase the dose oftener than every 2 to 4 days, and then only by 5 units or less at a time, unless he is very familiar with the new insulin and can foresee the way in which the particular patient will react to it.

(2) Patients who get reactions from protamine-zinc insulin must be observed over a prolonged period of time after the administration of orange juice or other forms of glucose, for they frequently need to have glucose administered several times in succession.

We are indebted to Miss Elsie Ewartz, dietitian, Miss Laura Avery, laboratory technician, and the nurses of the Rhode Island Hospital.

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NEW ENGLAND SURGICAL SOCIETY

FRACTURE OF THE HEAD OF THE HUMERUS*

Treatment and Results

BY JAMES WARREN SEVER, M.D.†

THIS paper is presented in an attempt to evaluate the various methods used and advocated in the treatment of fractures involving the head and neck of the humerus. It is based on the study of 91 cases, which were treated by various methods, by many men and under varying conditions. There is also a review of the pertinent literature. Curiously enough, this type of fracture seems to be much more common in women than in men, although the average age incidence is about the same for both sexes, namely, 49 years.

CLASSIFICATION

In the anatomic classifications of these fractures, I have followed Roberts's[1] method with slight modifications. This method is simple and adequate. In this series the cases group themselves as shown in table 1.

TABLE 1.

Class	Type of Fracture	No. of Cases
1	Transverse fracture, surgical neck.	29
2	Same with fracture of greater tuberosity.	18
3	Comminuted fracture, surgical neck.	10
4	Same with fracture of greater tuberosity.	15
5	Greater tuberosity alone.	10
6	Fracture dislocations.	
7	Same with fracture of greater tuberosity.	2
8	Same with fracture of head and neck.	5
9	Same with separation of upper humeral epiphysis.	2
		91

This classification is better than most, as it gives an intelligent approach to work from and is not so academic as that advocated by Kocher, who describes the supra-, pre-, infra- and subtuberosity types of fractures of the head alone. These types may exist as units, but in my experience they are difficult to classify, exist generally as cracks and need no expert treatment, unless associated with a fracture of the neck.

*Read at the annual meeting of the New England Surgical Society, September 26, 1936, at Bridgeport, Conn.

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I have for many years been an advocate of the abduction method of reduction and after-treatment of these cases, but in a study of the literature there are very few authors at present who advocate this method. In fact, the majority, especially in recent years, seem to ignore it and report better results after reduction by the sling and swathe dressing.

In the review of the literature, there is very little that calls attention to the necessity or advisability of the abducted position in the treatment of this type of fracture. A certain amount of abduction, possibly 45 degrees, is spoken of occasionally, but almost invariably in connection with inward rotation of the humerus. There are a good many arm splints, such as Middeldorpf's triangle, which is the ancestor of the Penhallow-Osgood, Monks and Cotton splints. They all serve their purpose, but none of them hold the arm in sufficient abduction and outward rotation.

A number of authors[2, 3, 4, 5, 6] believe that some abduction may be necessary but advise holding the arm in abduction only to about 45 degrees, and in inward rotation. Occasionally, the arm is carried forward about parallel to the sagittal plane. Many apparently think that an axillary pad, shoulder-cap, sling and swathe will answer every purpose. Royster[7] and Buchanan[8] both believe that excision of the head is the method of choice in cases of fracture dislocations. Royster also states that in selected cases the head may be replaced following a fracture dislocation with occasionally satisfactory results. Van Hook[9] believes that, in cases where there has been a fracture-dislocation of the head of the humerus, it is better to use the Murphy fat and fascia transplant to ensure later motion, and states that removal of the fragments of the humeral head, after simple fracture with dislocation of the head, gives an excellent result, provided muscular attachments are re-established.

This procedure, I believe, is radical and unnecessary and, many times, impossible. Van

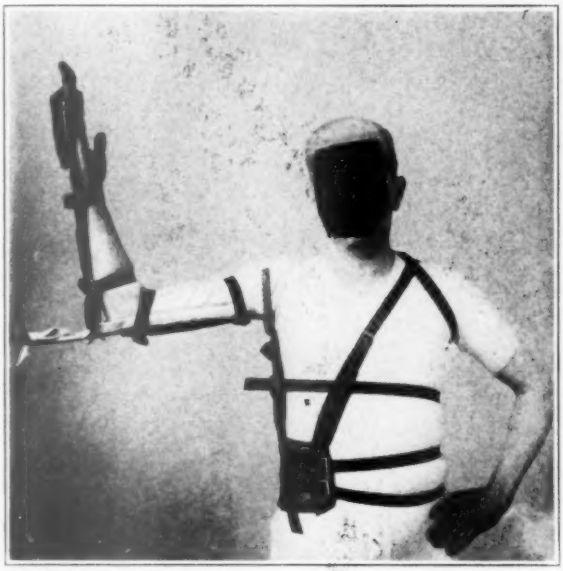

FIGURE 1. Showing Sever abduction splint applied.

FIGURE 2. Patient B. Comminuted fracture of head of humerus 2 weeks after injury. Treated with sling and swathe.

Hook quotes Hennequin and Loewy,[10] who state that intracapsular fractures at the shoulder heal as well as extracapsular fractures, in a comparison with similar fractures of the hip joint, but that full recovery cannot take place in those fractures occurring in persons beyond middle age in less than 6 months or a year, if at all, unless reduction of the fracture is absolutely complete.

Austin[11] and Gordon[12] state that in fractures of the greater tuberosity and below the tuberosities, abduction, external rotation and strong traction are necessary to disengage and readjust the fragments. In these latter cases, the head may be forced into abduction and outward rotation with the shaft displaced either laterally or mesially. Gordon[12] lays great emphasis on early and complete active and passive exercises.

Wilson[13] states that the advisability of abduction of the humerus in fractures of the head is recognized by all. This position, he feels, is due to the necessity of getting the arm up later; he feels that getting the normal movements back is greatly helped by having the arm well up while healing is taking place. He also warns that too much abduction causes angulation at the site of the fracture.

Cotton[14] recognizes the desirability of treatment in the abducted position on account of the earlier recovery of full shoulder motion, but realizes the possibility of displacement of the fragments by such a position because of the pull of the abductor group of muscles.

Silfverskiöld[15] reports 16 cases of fracture-dislocation of the head of the humerus, in 13 of which open reduction was done with good functional results. He believes that open reduction should be the method of choice, except in badly comminuted fractures, where resection should be done. He believes that after operation the arm should be abducted 80 degrees and externally rotated 45 degrees, with a minimum period of fixation of 3 weeks, followed by active and passive exercises.

Rechtman[16] reports a case of open reduction of a fracture dislocation of the head of the humerus, which was successful in terms of later function. Twenty-six months after the operation, an x-ray showed that the head of the bone had atrophied to one fourth its usual size, with considerable loss of cartilage. The function, however, was good. He quotes Piersol as saying that, in a fracture of the anatomic neck where there has been no impaction, and where the capsule of the joint has been completely torn through its entire circumference, necrosis of the fragment must follow. This, evidently, is what had happened in Rechtman's case and was due at least in part to interference with the blood supply to the head, which has no direct blood supply but derives its nourishment through its capsular and periosteal attachments. This result is so unusual that I believe its possibility should be discounted in most cases.

Howard and Eloesser,[17] from an interesting experimental study of muscle pulls about the shoulder by means of a skeletal phantom model (elastics to replace muscles), conclude that the long head of the biceps is the controlling force in establishing and maintaining reduction and position of the short or proximal fragment. They believe that abduction makes approximation difficult to obtain and still more difficult to preserve and that downward traction is the best method of reduction, provided that the

FIGURE 3. Patient C. Comminuted fracture of head and neck of humerus in abduction.

long head of the biceps is intact. They dress the arm at the side in a sling and swathe after reduction under local anesthesia. They believe that the aeroplane splint is bad in theory and worse in practice. Massage is used from the start, and active exercises should be begun at the end of 2 weeks. They state that, at the end of 8 weeks, the patient has a painless, movable and useful shoulder, with an almost normal range of motion.

Bardenheuer is quoted in their paper as being convinced that, with few exceptions, the deformity can be reduced and maintained by traction on the arm parallel to the body. He established the fundamental fact that in fractures of the upper end of the humerus, traction on the lower fragment is transmitted to the upper fragment through the untorn periosteum and the tendon of the long head of the biceps. Such traction not only tends to draw the head of the fragment into line with the shaft, but when applied parallel to the body also most advantageously overcomes displacement of the lower fragment produced by the adductor muscles, and draws the greater tuberosity, the shaft of the humerus and the external condyle into a straight line.

Funsten and Kinser[18] review 64 cases of fracture about the shoulder; they state that the abducted position is unnecessary and generally contraindicated, and declare that "the death knell of the use of the complete abduction method, either by splints or plaster, has sounded." After treatment, a sling and swathe are all that is used, followed by early massage and active exercises. They report excellent results.

Codman[19] also recognizes the usefulness of the tendon of the biceps. He believes that, as the fracture of the head of the humerus occurred with the arm abducted and elevated in relation to the body, so the reduction should be undertaken with the arm in a similar position, namely, abduction and full elevation, the so-called "pivotal-position," using the acromion as a fulcrum to reduce the fracture. Then follows extension of the lower arm to tighten the biceps tendon with upward traction. The arm is then carried down in extension, rotated in the coronal plane and allowed to rotate inward with the elbow flexed. A sling and swathe are then applied.

FIGURE 4. Patient O'K. (2/24/35). With arm parallel to the side; considerable displacement of fragments.

This, then, gives a fair cross section of the opinions and experiences of some of those who have followed and reported cases of fractures of the head of the humerus. It would seem that the advocates of the sling-and-swathe method of treatment, following adequate reduction and combined with early active use, have made out a very good case, and that many are returning to Bardenheuer's opinion that, following reduction, dressing the arm at the side is adequate for eventual good function. It may be that so far no adequate splint has been devised to hold the arm firmly abducted or that fixation has been too long maintained in this position to ensure good results, but I still feel that, as a key position to useful function, abduction is the most important method in many cases.

I feel strongly that if adequate fixation can be maintained in elevation, abduction and outward rotation or, in other words, in dressing the

FIGURE 5. Patient O'K. (3/8/35). Replacement of fragments as the result of manipulation in abduction and outward rotation.

FIGURE 6. Patient T. Showing atrophy and distorted head of humerus 1 year after operation for fracture.

lower fragment in line with the upper, one should obtain good results by this method even earlier than by any other method. In this position, the adductors cannot contract, scar tissue from hemorrhagic exudate in the axilla cannot form and contract, and the arm is in a position of maximum usefulness from the start. I feel that my splint holds well, but surely my results cannot compare with those reported by Roberts, Howard and Eloesser, and Funsten and Kinser.

The interpretation of functional results is always difficult, and the estimation of function in terms of percentage is, I believe, more so. If a good result consists of 75 per cent of normal motion, then my results are not far from those of other surgeons. I question whether, in the average case of a fracture involving the head and neck of the humerus, the result is often very good under any treatment. By a good result I mean restoration to normal function. If so much permanent disability can result from an arthritis or periarthritis of the shoulder joint or from a chronic subdeltoid bursitis, why should a more extensive injury to the intrinsic structure of the joint itself give better results? I believe that we should admit that we cannot expect perfection or anything approaching it in the results of such shoulder fractures. Careful differentiation of shoulder-joint motion and scapular motion would, I believe, lower our percentage of actual joint function.

In view of the considerable personal experience in attempting the reduction of fractures about the shoulder joint, I cannot feel that experimental evidence as to the usefulness of the long head of the biceps should carry much weight, unless one is to depend wholly on its integrity to replace the fragments anatomically. Experiments carried out on a skeleton by means of elastic bands do not reproduce living conditions associated with trauma, hemorrhage and displaced bone fragments, especially those in comminuted fractures. It is, I believe, going too far to state that, with a ruptured biceps tendon, an open reduction is always indicated.

In regard to x-rays in these cases, it is necessary that both shoulders should be taken in the anteroposterior plane as well as in an axillary view. Many cases where the head seems to be in good position after attempted reduction show gross misalignment in the axillary view.

MECHANICS OF THE FRACTURES

These fractures are generally caused by a fall, the patient's arm being held in a position of abduction, the hand pronated and the humerus inwardly rotated. As a result of this position, the tuberosity of the humerus comes forcibly into contact with the tip of the acromion. It follows, then, that (1) the tuberosity is broken off, (2) a fracture of the neck of the humerus occurs, (3) a dislocation of the humerus occurs or (4) a combination of these various preceding conditions results.

In fractures of the greater tuberosity alone, there are two main types: first, where there is merely a crack running through the base of the tuberosity with, occasionally, a dropping of the fragment, and secondly, where the tuberosity as a whole is pulled forcibly off and rotated backward and outward. This latter condition is due to the pull of the supraspinatus, infraspinatus and teres minor muscles. Any attempt to reduce this fracture in any position other than outward rotation, elevation and abduction of the humerus will, of course, fail. Not infrequently this type of fracture may be complicated by a ruptured supraspinatus muscle, a fracture of

FIGURE 7. Patient P. Showing arm at side with solid union; considerable rotation of head.

the surgical neck, an impaction of the head and shaft or a dislocation.

FRACTURE OF THE NECK OF THE HUMERUS

In young people, before the epiphysis is united, it is not uncommon to see the entire epiphysis displaced. This displacement may be partial or complete. The entire head is not infrequently rotated upward and backward; often it is in a position of subcoracoid dislocation and may be upside down. The mechanics of the injury are the same in these cases as in the fractures of the greater tuberosity, but there may be added the force of the body weight applied to the shaft through the acromion acting as the fulcrum with the arm abducted. These latter cases may occasionally be manipulated into position, but more often have to be operated upon and the fragments replaced or, in adults, the articular head of the bone may occasionally have to be removed. Frequent manipulative attempts should not be encouraged for fear of damage to the axillary vessels and nerves. Associated with this type of fracture is always the inward rotation and adduction of the distal fragment consisting of the shaft of the humerus. This inward rotation is due to the unopposed pull of the pectoralis major, latissimus and teres major. There may also be some upward displacement of the lower fragment due to the unopposed pull of the triceps, biceps and coracobrachialis.

The severer types of these fractures are associated with capsular tears and exudates into the joint, and these add greatly to the subsequent disability. Early motion after reduction is as much an essential to a satisfactory result as a primary correct anatomic reposition. The results, in my experience, as seen in these cases treated by present routine methods are bad. That is, motion is always limited in abduction, outward rotation and elevation, and the patient has little or no ability to put the hand behind the head, even after a long period of time (8 to 10 months), if ever. After satisfactory reduction, early traction in abduction and outward rotation with right angle elevation would give the patient a base from which to start these motions, and, I believe, would ultimately lead to a vast improvement in results.

FIGURE 8. Patient B. (1/2/35). After open reduction of fracture dislocation of the head of the humerus.

Our principal difficulty of obtaining later outward rotation, abduction and elevation after this type of injury, and following the old method of treatment, is that new bone or an exuberant callus blocks the sliding of the greater tuberosity under the acromion. With the arm in the primary position of outward rotation, abduction and elevation, no such blocking callus can form, and the principal obstacle to later function is at once prevented. The adductor group of muscles are also prevented from contracting in this position, and, as someone has said, they "atrophy long," and the external rotators and elevators "atrophy short."

METHODS OF APPLYING TRACTION

There are several methods of applying traction to the humerus. Following a fracture of the upper end of the humerus that has been reduced by manipulation under ether, the traction may be applied to the arm in the usual manner. If the patient is to stay in bed, an ordinary Thomas arm splint may be used and fastened to the head of the bed with a bandage

FIGURE 9. Patient B (4/—/35). Showing apparent absorption along the line of fracture 4 months after open reduction.

FIGURE 10. Patient B. (10/6/36). Twenty-two months after open reduction showing solid union and bony overgrowth from the acromion, with very little motion of the shoulder joint.

in such a way as to prevent dropping of the arm below the shoulder level. Its outer end may be supported on a bedside table or by a sling from an overhead support. Care should be taken not to have too much or too long-continued traction. Traction sufficient to hold the fracture in adequate position and to overcome muscle pull may be enough to cause an arthritis or periarthritis of the elbow, which proves very troublesome for a long period of time. It may be better to have the elbow flexed and the hand supinated with all the pull coming on the upper arm. If the lower arm is incorporated in a plaster cast with the elbow bent,—the cast going a few inches above the elbow,—traction can be made on the cast in the bend of the elbow without danger and with excellent control of the traction. Care should also be exercised to prevent overtension on the nerves of the arm, which may lead to temporary paralysis of the hand or lower arm. There is a splint developed by Coonse[22, 23] which is a modification of the Thomas splint, and which may be useful in certain types of cases for immobilization and traction while the patient is in bed.

The Russell traction splint, with and without skeletal traction, has been employed a good deal in certain clinics during the past few years. It is comfortable, seems to offer good possibilities for maintaining reduction in certain cases, and encourages early active motion under constant control. Ten days to 2 weeks is a sufficiently long time to ensure enough union so that the patient may be allowed up and about in an ambulatory splint that maintains the reduction. This splint can be applied to all simple cases of fracture from the start, but patients with the more severe type of fracture are more comfortable and safer in bed for 1 or 2 weeks, especially those who have required manipulative or operative reduction.

DESCRIPTION OF SPLINT

This splint is modified somewhat from one which has been used extensively in a simpler form for the treatment of cases of obstetric paralysis. With the addition of extra room at the elbow for traction and a split ring at the shoulder for security, it offers a very adequate apparatus for the ambulatory treatment of these fractures. It is made of copper-washed iron wire (¼ in.) or of aluminum, and can be readily adjusted to fit any individual case (fig. 1).

TREATMENT FOR FRACTURES OF CLASSES 5 AND 7 (ROBERTS)

In class 5 there is a simple fracture of the greater tuberosity without displacement. In this injury the line of fracture runs parallel to the long axis of the humerus and simply separates, wholly or in part, a portion of the greater tuberosity from the head. It is a very common injury and should be treated by the sling, shoulder-cap and early motion method.

In the cases of more extensive injury (class 5a) the greater tuberosity is split off and rotated upward, backward and outward. By outward rotation, elevation and abduction, the fractured surfaces generally can be approximated. Operation is rarely indicated, not for removal of the fragment, but to restore the fractured surfaces to their normal relations. Plat-

FIGURE 11. Patient Ba. Eleven-year-old resection of head of humerus; excellent function.

ing or bone-pegging for this condition should be discouraged in all but the exceptional case.

Dislocation of the shoulder may also be present with this class of injury and, following the reduction of the dislocation, the treatment may be carried out in the usual way, but with the advice that baking, massage and passive and active motion should be started not later than the end of the first week.

The only contraindication for abduction and elevation in these cases is the fact that this position may cause redislocation on account of the tear in the anterior portion of the joint capsule.

TREATMENT FOR FRACTURES OF CLASSES 1 AND 2 (ROBERTS)

In these classes there is a simple fracture of the surgical or anatomic neck without displacement or with an impaction of fragments and with or without a fracture of the greater tuberosity. These cases, as a rule, do well without manipulative reduction. A sling, swathe and shoulder-cap are generally all that is necessary for fixation. Early active motion is necessary for a good result.

TREATMENT FOR FRACTURES OF CLASS 3 (ROBERTS)

Here there is a fracture of the head of the humerus, generally comminuted, with a fracture of the shaft, but without dislocation of the head. This class of fracture is not so common as the two previous classes, and is usually the result of greater trauma. Traction in abduction and outward rotation may be employed if it is found that the opposing pull of the pectoralis major does not distort the fragments of the shaft by its tendency to displace mesially the lower fragment. Otherwise, the treatment is to be carried out as in the two previous classes. Passive motion, however, should be started later —at about the third week.

TREATMENT FOR FRACTURES OF CLASS 6 (ROBERTS)

This type is one that represents the more severe type of fracture dislocation and about which certain individuals differ in the procedures they advise for treatment. Some advocate removal of the head at once (Buchanan); others advise replacement of the head to its normal position with suture, if necessary (Royster); and still others advise not only the removal of the head, but also covering the ends of the distal fragment with a muscle flap to improve later function. Obviously, in cases where the head has been displaced for any appreciable time, it should be removed. The same rule applies where there has been much comminution of the upper end of the distal fragment. In certain cases, if operated on at once and under favorable conditions, the head may be replaced with a fair chance of a good functional result. (Lasher[20] has reported such a result.) Too long a delay in operating would probably result in the death of the articular head and its sequestration which would later necessitate removal. I do not agree with those who state that resection of the head should never be done. Function is always impaired after removal of the head, but the usefulness of the arm is never so bad as one might suppose, and many times it is better than it would have been had the head been replaced. In 4 cases in this series with the extensive comminution of the distal fragment it was obviously impossible to replace the articular head, and it was removed. The arm was put up in an abduction splint, with abduction, outward rotation, elevation and supination. Traction on the arm was continued for 2 weeks, a sling was then applied, and active and passive motion was started. In 4 of these cases, 1 had good function, 2 had poor function, and in 1 case the result is not known. If joint relaxation follows removal of the head, a Nicola operation can easily be done.

SUMMARY

1. In fractures of the external tuberosity without displacement, no reduction is, of course, necessary.
2. When there is separation of the external tuberosity, simple outward rotation, abduction and elevation will replace the fractured surfaces.
3. When there is dislocation of the head with a fracture separation of the greater tuberosity, reduction of the dislocation by the usual methods is required. I believe that in these cases abduction, outward rotation and elevation with early motion give better results.

4. Comminuted fractures of the head and neck and transverse fractures with displacement of the fragments require traction under ether anesthesia and manipulation under a fluoroscope, using the stockinged foot in the axilla as a counter force and also as a fulcrum to reduce the inward displacement of the distal fragment. Traction in line with the body and also in outward rotation and abduction may be necessary to reduce the fragments.
5. Impacted fractures of any type are generally best left alone, provided that the position is at all satisfactory.
6. Old age is, as a rule, contraindication for anything but the simplest form of treatment.

ANALYSIS OF RESULTS

In analyzing the results of my 91 cases, I could find only 78 where both the methods of treatment and the results were known (table 2).

TABLE 2. *Methods of Treatment.*

Sling, swathe, shoulder-cap	46
Aeroplane splint	18
Traction in bed	9
Open reduction (with removal of head in 4)	5
Total	78

Unfortunately, I could not employ the classification methods used by Roberts at the Massachusetts General Hospital.

Table 3 gives the results in terms of function in relation to type of treatment:

TABLE 3. *Results of Treatment.*

Type of Treatment—Result	No. of Patients
Sling and swathe	
Good	20
Fair	9
Poor	2
Not known	15
Aeroplane splint	
Good	7
Fair	5
Poor	5
Not known	5
Traction in bed	
Good	2
Fair	1
Poor	1
Not known	1
Operation, head removed	
Good	1
Poor	3
Not known	1
Total	78

It is obvious from this list that more cases were treated by the sling, swathe and shoulder-cap method than by any other and that on the whole the results, so far as I could get reports, were better.

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MEDICAL EDUCATION NOW AND THEN*

BY STEPHEN RUSHMORE, M.D.†

IT occurred to me that you might be interested in a few words about the medical education of forty years ago, as I recall it. In recent years we have heard much of raising the standards and increasing the requirements for admission to medical schools. It is on this account that I want to say a word about a medical school which in the past forty years has made practically no formal change in this respect. You may think it impossible for any medical school to exist for forty years and to make no progress, but that is not quite what I mean; I refer to an almost complete lack of progress in formal requirements. I know the school at first hand for it was there that I studied.

Forty years ago the formal requirements for admission to Johns Hopkins University School of Medicine were graduation from college, a reading knowledge of French and German and one year of physics, chemistry and biology. Today, one additional year of chemistry is required and about two years of high school Latin. No further inquiry was made as to the reading knowledge of French and German beyond the statement of the candidate that he possessed it. Since assignments in foreign languages with no translations were made in the regular course, it was just too bad for the student if his reading knowledge was inadequate.

A peculiarity of the instruction in that school was what we, who had taken the ordinary college course, regarded as a lack of instruction and the use of what was called the "block system" of studies. There was little lecturing, some informal talks and the rest was laboratory work. The whole morning, five days a week, was devoted to one subject and the whole afternoon to another subject. It was a hard life for most of us who had expected to be taught as in college. Later, in the clinical work, we were on the wards as clinical clerks: we were made to feel that we were a part of the hospital organization.

I have referred thus briefly to that school of forty years ago because, even today, few schools have higher standards of requirement, and because its first years were part of a unique experiment in education in this country. There are at least two lessons to be learned from that experience which gave a new exemplification of old principles in education.

The first lesson concerns the teachers. The faculty consisted of Mall in anatomy, Howell in physiology, Abel in pharmacology, Welch in pathology, Osler in medicine, Halsted in surgery and Kelly in obstetrics and gynecology. It is safe to say that that faculty has never been rivaled in any other medical school at any one time. How was the faculty brought together? Ah, there you are close to a problem for which there is no general solution! The gift of insight concerning how to pick young men who will develop into great men is rare indeed, but President Gilman had that gift to a remarkable degree. The bigness of a medical school depends on money; the greatness of a medical school depends on something else—something which money cannot buy.

The second lesson to be learned from this experiment is the part which a hospital can play in building a medical school. The hospital in this case was built first, was a going concern and, in an important sense, became a school of medicine before any classes were opened for undergraduate instruction. The medical school must be physically close to the hospital and, from the point of view of organization, closely connected with it.

Of the many changes which have taken place at Johns Hopkins in these forty years, I do not need to speak; to other schools it has proved a great stimulus. Perhaps harm has been done by slavish imitation of specific procedures, but it has been an example for imitation without harm in that it has stood for and has been an example of freedom to experiment along different and untried ways. Today medical education is still an unclosed book. There is far more to be learned than has been learned, and we need leaders to help us to reach new fields of accomplishment and attainment, just as much as we did forty years ago.

Of medical education today I will speak only in the most general terms, but you will see that the changes in external standards have been due to spreading widely what was actually in existence at one point forty years ago. Yet internal changes also have taken place. To what has this progress been due—progress, which some have said, perhaps too generously, is beyond anything which has taken place in education in any similar period of time in the history of the world?

An outward change, and one which has not had its full effect on inward growth, is that the modern medical school is, generally speaking, part of a university. The spirit of the university, which it would be interesting to discuss, has had a transforming influence. The relation of the professional school to the university presents interesting problems which we cannot touch on tonight. Besides universities, there

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have been other organizations and, sometimes, individuals that have had important influence. Perhaps the latter have sometimes thought more highly of themselves than they ought to think. But the driving power which has irresistibly wrought this transformation is progress in the fundamental sciences on which medicine is built. All these have transformed the preclinical sciences. Thus, medical practice has been driven forward and finally, with a certain lag, medical education.

There is another point of view which has come into prominence as a result of these years of much striving and many changes and some progress. This is suggested by the subject about which I am really speaking tonight, namely, medical education now and then. It was characteristic of medical education one hundred, even fifty, years ago, that it was pursued by the teacher almost casually. I can illustrate from my own experience what I mean. When I was in medical school I happened to be on friendly terms with a number of teachers who were not connected with the institution where I was a student. There were at that time eight medical schools in a city which now has two, and I was in some sort of contact with four. In the office of one of the teachers whom I knew well, I noticed a young man busily engaged with a typewriter and what proved to be a textbook on obstetrics. I found he was writing the lectures on obstetrics for this physician, who was professor of obstetrics, copying from the book the words which the physician had underlined. The incident is one of the kind which President Butler of Columbia had in mind when he said many professors lecture as if they were unaware that the art of printing had been discovered. If one asks why this physician chose to teach in this remarkable manner, one finds a complicated answer, but I think that, without doubt, one of the reasons was that he taught for the fun of the thing. Many physicians teach because they find pleasure in teaching.

But let us think of the student. Let us remember that the medical course, at least the clinical part of it, was made up of just such lectures. It was not so very long ago, in a medical school with which I was familiar, that each afternoon for five days a week there were four one-hour lectures. The poet spoke truly when he referred to "man's inhumanity to man."

The important change which has come about in this connection is that the burden of medical education must be carried, not by the casual teacher, but by one to whom teaching is a major interest. The same principle is at the basis of the so-called "full time" arrangement for teachers in the clinical branches, though here the emphasis is often wrongly placed. Medical education requires specialists in teaching, persons who have become expert in it through long training and experience. I do not mean that no other persons should participate in the teaching, but that the burden of medical education must be on the person especially qualified. Today is the day of the expert.

I must not take too much of your time, yet I do want to ask two more questions. How many medical schools should there be? If one asks practicing physicians, they are likely to say that there is too much competition, there are too many doctors and, so, too many schools. If one asks candidates seeking medical education, they are likely to say that there should be more schools for, of about twelve thousand candidates trying to enter medical school each year, about seven thousand are crowded into the first-year class, and about five thousand are excluded. Perhaps ten more schools are needed to relieve the tension temporarily. But a medical school cannot be a temporary affair. No one actually knows whether there are too many or too few physicians. No one knows how many physicians one hundred and thirty millions of persons need. But in any case the number of schools and the number of physicians should not be determined arbitrarily by any group, for example, by a federal bureau in Washington.

In closing, one final question, What are the needs of medical education today? In a sense, medical education is under a cloud; there is something which is delaying its progress. This I take to be complacency and self-satisfaction. But the situation can be changed, is changing before our eyes, and the survey of medical schools completed recently will be of great help. It is the divine discontent which never disappears completely that offers hope for the future. We need money and buildings, and books and libraries for medical schools, to be sure, and our needs in these respects are by no means small. But what we need above all things else are new ideas—new and better ways of doing new and better things. Yet it is not enough to have new ideas; we must master them, we must know how to use them, how to apply them so that they are transformed into effective realities in the actual world of sickness and suffering in which we live and which we are striving in some small measure to improve.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PROCEEDINGS OF THE ONE HUNDRED AND FORTY-SIXTH ANNIVERSARY

House of Delegates, Manchester, N. H. May 17, 18 and 19, 1937

THE House of Delegates convened at the Hotel Carpenter, Manchester, New Hampshire, on Monday evening, May 17, at seven-thirty o'clock, with Speaker Cleon W. Colby presiding.

The following members answered the roll call:

The President, ex-officio
The Vice-President, ex-officio
The Secretary-Treasurer, ex-officio
Richard W. Robinson, Laconia
Chester L. Smart, Laconia
Norris Robertson, Keene (Alternate for Dr. Hubbard)
Frank M. Dinsmoor, Keene
Leslie E. McKinlay, No. Haverhill
Leslie K. Sycamore, Hanover
Roland J. Joyce, Nashua
Deering G. Smith, Nashua
Clarence O. Coburn, Manchester
Warren H. Butterfield, Concord
Andrew L. MacMillan, Concord
Herbert B. Messinger, Franklin
Harry O. Chesley, Dover
Jeremiah J. Morin, Rochester
Henry C. Sanders, Jr., Claremont
Everett J. Stone, Newport
F. J. C. Dube, Center Ossipee
William J. Paul Dye, Wolfeboro
Henry O. Smith, Hudson

SPEAKER COLBY: For the Committee on Credentials, I appoint Dr. E. J. Stone, Dr. J. A. Ferguson, Dr. F. M. Dinsmoor, Dr. H. C. Sanders, Jr.

For the Committee on Officers' Reports, I appoint Dr. D. G. Smith, Dr. H. B. Messinger, and Dr. J. E. Larochelle.

For the Committee on Communications and Memorials, I appoint Dr. L. K. Sycamore, Dr. C. O. Coburn and Dr. A. L. MacMillan.

For the Committee on Nominations, I appoint Dr. H. O. Chesley as Chairman, with Dr. R. E. Wilder, Dr. R. M. Deming, Dr. H. C. Sanders, Jr. and Dr. C. L. Smart.

In order to accommodate a representative from the Hartford Accident and Indemnity Company, who is here to talk to us on the insurance problem, I am going to call upon Mr. Protzman.

MR. PROTZMAN: In January, the Hartford Accident and Indemnity Company notified the New Hampshire Medical Society that they did not care to carry the risk any longer, as they could not stand the losses.

In 1933, we took in $10,380 and we spent $7,252. Obviously, that is a loss. In 1934, we had premiums of $10,455, with losses of $6,565. Since that time, those figures have been raised to $7,400—again, a loss, so far as we are concerned. In 1935, we had premiums of $10,976, with losses of $8,100. Since January of this year, we have had losses of $11,800, that is, almost $1,000 over the amount of premiums. You can see without any explanation that these figures are a loss, so far as the company is concerned. In 1936, the premiums were $10,900, and our losses to date are $2,500. If these figures stand, that will be a profitable year for us; the first we have had in four years.

At a meeting at Concord in January, we agreed to continue on the risk, if we could get a premium of $55 annually. I am frank to say that this is a high rate and is higher than it should be. But, it was agreed at that time that there would be closer co-operation between the Advisory Committee on Jurisprudence and the Company, and it is surprising to note the improvement that has occurred in the last four or five months.

During that time the Legislature in New Hampshire has passed a bill reducing the statute of limitations in New Hampshire from six years to two years. That will help materially, I believe, although it is something that we can only estimate at this time. But Mr. Sulloway, who has tried practically all of the cases that have been defended in this State, will bear me out in the statement that, if this statute of limitations had been two years instead of six years, there would have been a material saving on the figures that I have just quoted to you.

Since January, the company has "about-faced." We do want the business and, further than that, promise you that if we can continue to get the co-operation that we have been getting in the last four or five months, you will be making your own rate. We definitely promise you that if we can make the small profit that we are entitled to make for that volume of business, your rate will be adjusted accordingly.

SPEAKER COLBY: Are there any questions?

DR. COBURN: How many new members have taken out insurance since the meeting in January?

MR. PROTZMAN: I am not sure about that. Naturally, we would not write anybody who is not a member of the Society. As I understand it, he can only become a member at one time

during the year. If that is so, that rule will have to be changed; so far as we are concerned, if a man is admitted to the county society, that will be sufficient.

SECRETARY METCALF: Any doctor who joins the county society automatically becomes a member of the Society.

DR. SYCAMORE: But there might be a period of six months before a man could be taken into the county society. Will he have to be unprotected during that time? In our own county, we have meetings twice a year, and, before a man is admitted, he has to be voted in, at a meeting.

MR. PROTZMAN: Then you probably have a committee that would pass on him prior to the meeting?

DR. SYCAMORE: Yes.

MR. PROTZMAN: If the committee said that they were going to take him in, we would also take him, regardless of the date of the meeting.

DR. SMART: What percentage of premiums should the company have before they make a profit?

MR. PROTZMAN: The figures that I have given you here as to the amount of money spent, represent pure loss; those figures do not take into consideration the handling of the claims by our own salaried men; neither do they take into consideration the commissions that we pay to our agents or the amount of money that we spend out, incidental to the trial of a case or cases. Those figures do include our attorneys' bills, which are surprisingly small. Therefore, if we could get approximately 60 per cent, that would be a good round figure.

The rate is absolutely predicated upon the amount of money spent out for members of this Society. That is why I told you that you could make your own rate; if the losses go down, we guarantee that your rate will go down.

QUESTION: May I ask if other companies are handling physicians' liability on a group plan?

MR. PROTZMAN: Yes. But it might be interesting for you to know that when we raised our rate in January, a company that is not writing your Society as a group but has been taking some doctors individually promptly raised its rate to the amount that we did.

QUESTION: Have you figures as to the number of men in the Society who carry liability insurance?

MR. PROTZMAN: We carry 52 per cent of the Society.

MR. SULLOWAY: May I say that in some states societies have hired attorneys for these doctors' cases. But apparently the American Bar Association has taken the position that, where states have undertaken to defend each doctor at a fixed rate, it is unethical practice of the law.

A MEMBER: I should think that this rate would suggest that the New Hampshire doctors are not making a good showing.

MR. PROTZMAN: The experiences in New Hampshire have been unusually bad.

MR. SULLOWAY: None of these cases are settled until the Advisory Committee on Jurisprudence votes that a case should be settled. They pass on every case. If they vote that it should be settled, then it is settled.

Under the new arrangement, it is proposed that there be some discretion as to what risks shall be taken. If a man has been sued three or four times, and those suits have to be settled, that man should be investigated, and discretion used.

MR. PROTZMAN: We reserve the exclusive right to underwrite each individual doctor; if we want to turn him down, we do it without regard to the Society.

SECRETARY METCALF: It is also fair to say that the men who will be refused will be few and far between.

MR. PROTZMAN: That is right. Since January I do not believe there have been any refusals on our part.

DR. S. T. LADD: In your experience, Mr. Sulloway, has it not been brought out forcibly to you that a lot of these cases had drifted along without knowledge of what had actually taken place, and time had elapsed so that there were a lot of stumbling blocks thrown in your way?

MR. SULLOWAY: That is very true. There are two things that happen in these cases. In the first place, some doctors feel that if a claim is placed against them, they should conceal it and handle it themselves.

Not only that, Dr. Ladd, but it seems that about three quarters of these cases arise from some unfortunate and perhaps unintentional comment made by some doctor who happens to see a case that has been treated by another doctor. We feel that the last doctor to see the case should adopt a sympathetic attitude toward the treatment that has been given by a previous doctor, or at least reserve his opinion until he has all the facts.

Nearly every case we get seems to arise from something like this. A lawyer will say, "I have talked with the doctor and he says the case was a botched job." Now, every time a doctor

makes a statement like that, it means that it is going to cost you all something on the premiums.

There is one practical illustration I will give. In a case which we had to handle recently, I had a conference with the lawyer who had that case. I went back to him a week later, and he said, "Now I have a doctor who told me about the circumstances, and I know I have got a case. I have talked with him, and he will support our case." The doctor who was consulted told us that he had tried to stop the case and would not testify, but here is the point. That doctor gave the lawyer a lot of general information, as a result of which, instead of settling the case for $1,000 it cost $2,250.

MR. PROTZMAN: Any member of the Society should immediately notify the Secretary or Mr. Sulloway when any case is brought. They will be glad to serve you. Mr. Sulloway is at your service at any time, without charge.

SPEAKER COLBY: Can you say whether there has been an increase or a decrease in the number of claims since our last annual meeting, which occurred in May, 1936?

MR. SULLOWAY: We know that within the last year we have had a large influx of claims. There were fifteen or eighteen.

QUESTION: How many have there been this year?

MR. PROTZMAN: They have dropped off in comparison with last year.

SECRETARY METCALF: There is closer co-operation now between the Advisory Committee on Jurisprudence and the Hartford Accident and Indemnity Company.

A subcommittee from the Advisory Committee on Jurisprudence was appointed to consider this whole matter, and we felt that inasmuch as all these cases are now being cleared through Mr. Sulloway's office and, therefore, can be checked immediately, and inasmuch as the other companies are loath to write group insurance, it was for the best interests of the Society to continue with the Hartford Company. If the House of Delegates wishes to take action to that effect, your subcommittee will approve of it.

DR. SANDERS: We all ought to discuss this matter of insurance in the county meetings and try to see that every man in the county is insured. We could also try to encourage co-operation and, as has been well said, we should not speak ill of our brother physicians.

DR. LADD: Do I understand that Dr. Metcalf's report was from the committee?

SECRETARY METCALF: It was from the subcommittee of the Advisory Committee on Jurisprudence.

DR. LADD: Then I move that the report of the subcommittee be accepted.

This motion was seconded and was carried.

DR. LADD: Mr. Speaker, I move that this report be adopted.

This motion was seconded and was carried.

SPEAKER COLBY: Our next order of business is the report of our Secretary-Treasurer.

Report of the Secretary-Treasurer

The following report for the year 1936 is herewith submitted:

Membership December 31, 1936

PAID

Belknap County	29	
Carroll County	15	
Cheshire County	31	
Coos County	28	
Grafton County	50	
Hillsborough County	123	
Merrimack County	64	
Rockingham County	51	
Strafford County	34	
Sullivan County	18	
Not in county society	6	
		449

UNPAID

Affiliate Members	28	
Honorary Members	14	
Total		491

The total membership on December 31, 1935 was 490.

FINANCIAL STATEMENT

Receipts

January 1, 1936. Balance forward	$ 1,011.68
Merrimack County refund	2.00
Net receipts 1936 annual meeting	518.13
Belknap County	174.00
Carroll County	90.00
Cheshire County	198.00
Coos County	168.00
Grafton County	330.00
Hillsborough County	780.00
Merrimack County	399.00
Rockingham County	327.00
Sullivan County	115.00
Strafford County	210.00
Benevolence Fund (Women's Auxiliary)	35.00
Members not in county society	36.00
New England Journal subscription	6.00
	$ 4,399.81

Expenditures

New England Journal of Medicine (tabular matter)	2.57
N. E. Journal of Medicine (*Journals* and transactions)	962.00
N. E. Journal of Medicine (two full subscriptions to *Journal*)	6.00
N. E. Journal of Medicine (setting type—Drs. Irving, Kellogg, Eades and Lowsley)	47.84

Carleton R. Metcalf (express)	1.72
Carleton R. Metcalf (expenses Maine medical meeting)	12.75
Carleton R. Metcalf (salary)	400.00
Bridge & Byron (printing)	80.00
Postmaster (postage)	49.58
Brown & Saltmarsh (stationery)	3.95
Evans Printing Company (envelopes)	10.00
Dr. John P. Bowler (Commonwealth Fund)	46.18
Dr. Travis P. Burroughs (Child Health Committee)	4.00
Benevolence Fund	322.00
Lena Tabor (clerical work)	35.00
Gerald Chandler (clerical work)	2.00
Harry Hagar (clerical work)	4.00
Dr. Thomas W. Luce (Permanent Fund)	1,000.00
The Robbins Company (Gold Medal)	15.19
Dr. Frederick P. Scribner (arranging program, annual meeting)	8.45
Dr. Robert O. Blood, Treas. (telephone and telegrams)	19.67
Mary Davis (typing and postage)	21.88
Dr. George C. Wilkins (Cancer Committee)	50.00
Dr. Wendell P. Clare (dues collected at annual meeting)	21.00
Dr. Henry C. Sanders (dues collected at annual meeting)	7.00
Dr. Warren H. Butterfield (dues collected at annual meeting)	28.00
Dr. Deering G. Smith (dues collected at annual meeting)	42.00
Dr. William D. Stroud (expenses annual meeting)	37.22
Dr. Oswald S. Lowsley (expenses annual meeting)	11.50
Dr. J. O. Arnold (expenses annual meeting)	33.75
Madeline A. May (stenography at annual meeting)	235.25
American Medical Association (membership blanks)	1.50
Newspapers	10.95
Eagle & Phoenix Hotel (scientific work—lunches)	5.50
Dr. Leslie K. Sycamore (rebate on membership dues)	30.00
Donald McLeod (flowers)	5.00
Women's Auxiliary	100.00
	$ 3,673.45
January 1, 1937. Balance in check book	726.36
	$ 4,399.81

The Society has one more member than last year despite the fact that we have dropped definitely 11 members who were counted last year although they were not in good standing. In other words, we can boast an actual increase of 12.

The Society is in sound financial condition. The Benevolence Fund amounts to $1,348. Toward the Benevolence Fund we received during 1936 the sum of $35 from the women's auxiliaries. The several county auxiliaries have been more active than they have been heretofore. Some of this increased interest is probably due to the fact that the President of the State Auxiliary planned to visit each county at least once. She has urged the members of the county auxiliaries to subscribe to the Benovelence Fund, to work for local hospitals, to provide financial aid for impoverished student nurses and to bring husbands to the annual meeting.

Three of our officers have died during the past year: Arthur T. Downing, of Littleton, a councilor; Thomas W. Luce, of Portsmouth, a trustee; and Charles Duncan, of Concord, a committee member and as you know, secretary of the State Board of Health.

For the two appointive offices which lie within the province of your President, Dr. Kittredge selected these men: anniversary chairman, Raymond H. Marcotte, of Nashua, and for member of the New England Medical Council, David W. Parker, of Manchester. On the recommendations which were made by the House of Delegates a year ago I can report as follows:

1. The members of the Society were advised that all of the issues of the *New England Journal of Medicine* for the year could be had by the payment of $3.00.

2. The Hospital Superintendents' Club was asked to formulate a working plan for group hospitalization but, so far as I know, nothing has been done in the matter.

3. Letters were sent to the secretaries of the medical societies in adjoining New England states sug gesting that physicians who live close to a state line be allowed to join the medical society in the state where they do not actually reside.

4. The attention of the Board of Registration in Medicine was called to the educational standards of foreign medical schools and the State Board of Health was consulted about the formulation of a new disease code.

5. A notice in the program calls attention to the annual meeting of the American Medical Association in Atlantic City this year.

6. The shortage of beds at Glencliff has been remedied by the erection of a new infirmary building.

7. You have seen from your programs that we are trying out a new routine for the annual meeting. The morning of the first day and part of the morning of the second day are to be devoted to round table conferences, conducted by our own members. On both afternoons papers will be read by out-of-state guests. Visiting delegates from other New England states, the newly elected President and the recipient of the 50-year gold medal will be introduced at the dinner on Wednesday evening. We shall have only one 50-year man on this occasion: Dr. Nathaniel H. Scott, of Wolfeboro.

The work of some of our more important committees deserves consideration.

The Committee on Medical Education and Hospitals has been chiefly concerned with the Commonwealth Fund and with the Speakers' Bureau. You will remember that the Commonwealth Fund provides free courses at the Harvard Medical School for a group of general practitioners in rural districts of New Hampshire. These courses last for one month and the practitioner may choose any one of four subjects. Last year there were some 50 men who were eligible under the specifications, but very few applied, despite the fact that the opportunity was broadcast through a circular letter. Our members have not shown appropriate interest in these postgraduate courses, and it does not seem to me that they have utilized the Speakers' Bureau extensively enough. The efforts of this Committee have met

with considerable inertia, which seems to be a quality not only of matter but of mind.

The Committee on Publication has had its difficulties. Several of the papers at the previous annual meeting were delivered extemporaneously, so that this Committee had to depend on the notes of the stenographer rather than on a written script. The speakers were slow in editing these notes for publication and finally, when they were assembled, the *New England Journal of Medicine* declined to print two of the papers. These two papers have been printed privately and are included in the Transactions, although they did not appear in the *Journal*. The Committee continued its scheme of publishing each month a column of miscellaneous items concerning doctors, hospitals and nurses, which were clipped from various New Hampshire newspapers.

The Advisory Committee on Jurisprudence has been confronted with the possibility, as you know from a circular letter, that the Hartford Accident and Indemnity Company might discontinue its group insurance for the members of the Society. For the time being this matter has been ironed out. The Hartford Company is ready to continue to do business with us at an advanced rate. At the old rate, the Company was losing money. It is the opinion of your Committee that the new rate is a fair one, that all of our members should be insured and that the insurance policy of the Hartford Company offers the best means to this end.

Mr. Frank J. Sulloway of Concord has co-operated heartily in the medicolegal work of this Society. He has attended the several meetings that the Committee has held to consider cases of alleged malpractice and has spoken on this subject in various counties. He has provided free consultation for any member of the Society who was threatened with a malpractice suit. Hereafter, all threatened or actual suits are to be cleared through Mr. Sulloway's office instead of through the office of the general agent of the Hartford Company in Manchester. Many of these threatened suits can be aborted if they are handled promptly by a competent attorney before they drift into the realm of the courtroom.

In this connection I offer for your consideration the malpractice plan of the Vermont State Medical Society. If we adopt the Vermont plan, the Hartford Company or any other insurance company would pay all the expenses of doctors who are insured in them and who are so unfortunate as to be sued. But for the large group who are not insured in any company, a fund would be created to pay the expenses of a defense; the fund would not pay for any judgment that was rendered against a physician. This arrangement could probably be carried out by the apportionment of $1.00 of the annual dues of each member, which would provide a sum of $400 or $500 for a retaining fee.

It should be remembered that your Treasurer is adding some $500 each year to our sinking fund, which is presumably being saved for a rainy day As a matter of fact the rainy day has never come, and our sinking fund has so far been sown on unfertile ground.

If such an apportionment does not seem desirable it might be feasible to tax each member of the Society $1.00 annually for this purpose. Vermont has such an annual tax. In our case it would mean raising the annual dues from $6.00 to $7.00.

At any rate, I believe that Mr. Sulloway should be recompensed for the free services he is rendering the Society. If the House of Delegates sees fit to adopt the Vermont plan Mr. Sulloway will receive some recompense; if the House of Delegates does not see fit to adopt the Vermont plan, I would suggest that Mr. Sulloway be given an annual retaining fee of $100 or $200 from our treasury.

The chief constructive work of the Committee on Maternity and Infancy has been the inauguration of a series of five lectures on obstetrics by five Boston physicians, which were given in five or six different centers in New Hampshire. These lectures proved to be very popular. The schedule for the series at the Elliot Hospital in Manchester will give you a comprehensive idea of this program.

The schedule was as follows:

Lecture 1. Dr. Daniel Abramson (Boston Lying-in Hospital). "Antepartum Care." Feb. 10.
Lecture 2. Dr. Benjamin Tenney, Jr. (Boston City Hospital). "Normal Delivery." Feb. 17.
Lecture 3. Dr. Judson A. Smith (Boston Lying-in Hospital). "Pathological Delivery." Feb. 24.
Lecture 4. Dr. Harold Teel (Boston Lying-in Hospital). "Toxemia." March 3.
Lecture 5. Dr. Kenneth C. Farnsworth (Boston City Hospital). "Postpartum Care, Including Complications." March 10.

Early in January the Committee on Public Relations held a meeting with the State Board of Health and its new secretary, Dr. Burroughs, to discuss legislation concerning medical procedure which would presumably be brought up in the General Court. This was an innovation; heretofore these two groups have not co-operated in this way.

The Committee on Public Relations submitted or approved of several constructive measures as follows:

1. A bill to limit to two years the period during which a suit for malpractice may be brought against a physician. The previous time limit was six years, and it is obvious that a physician who is sued four or five years after the alleged act of malpractice has difficulty in procuring his witnesses.

New Hampshire is the only state that has such a six-year limit. Of the thirteen states aside from New Hampshire that have a definite statute on this question, one has a three-year limit, one has a one-year limit and the other eleven have a two-year limit. Mr. Sulloway, who has been commended previously, wrote the bill for amending this statute and spoke at the Committee hearings, while your Secretary, I regret to say, was impelled to speak not only at this hearing but at several others.

2. A bill to transfer the medicolegal duties laid upon the State Board of Health to the office of the Attorney General to be in charge of a pathologist at the head of a bureau of medicolegal investigation. This concerns medical examiners in the several counties.

3. A bill to permit general stores to sell patent and proprietary preparations and standard drugs, like aspirin, which are not on the restricted list. Restrictions will be extended to include habit-forming drugs, such as the barbiturates, and toxic drugs, like amidopyrine. Attempts have been made to limit to drug stores the sale of such preparations, but in many rural communities which have no drug store such limitation is a hardship.

4. A bill to bring services for crippled children under the Health Board, with an appropriation of $5,000 a year for this work in order to secure an equivalent amount of Social Security Funds.

5. A bill relating to marriage which provided that both bride and groom, before the issuance of a marriage license, must present a certificate from

a physician stating that they are free from syphilis. In each instance the State Laboratory is to do a Wassermann test.

6. A bill to require one year's internship, approved by the medical examining board, before license to practice.

The Committee opposed or attempted to modify the following:

1. A drastic bill prohibiting compulsory vaccination and inoculation, which provided that no doctor could perform either without the written request of the patient or, in the case of a minor, without the written request of a parent.

2. A bill relating to the hours of labor which held that no woman could work more than 10¼ hours in any one day. In view of the fact that nurses are commonly on a 12 hour schedule, your Committee requested that nurses be exempt from this provision.

3. A bill stating that any pauper could employ any "licensed practitioner."

The Committee on Public Relations held its fire this year on the hardy perennial which would give hospitals and doctors the first lien on insurance payments in case of accidents.

We have not been confronted this year with any drive for so-called "health insurance." Some observers in Washington, however, believe that the federal government plans to create a "socialized democracy" based on the assumption of federal responsibility to cure important group ills now, all ills of all groups later; that the initial objective is to establish and maintain standards of living arbitrarily for organized labor and for farmers; but that the unavoidable effect of this widening of responsibility will be further expansion to include federal control of health, education and housing. If this is true, we may be obliged in a few years to choose between opposing or accepting "state medicine."

I believe that this Committee or the Society should co-operate with the Surgeon General of the Public Health Service in his attempt to clean up venereal disease and that it should oppose the inclusion of the Surgeon General's Department, now housed with the Treasury at Washington, in a new Department of Public Welfare. If this is organized, this new department will be run by a layman. If it devotes its energies to public health as well as welfare, public health is sure to suffer.

For the next session of the General Court, two years from now, the House of Delegates may wish to consider advocacy of more comprehensive methods for sterilizing the unfit. The present law makes sterilization difficult, and every individual who is "unfit" costs the State of New Hampshire approximately $400 a year. It may wish to consider, also, the advocacy of the so-called Basic Science Law. Such a law would require anyone who wishes to practice the healing art to pass preliminary examinations in the basic sciences before he or she comes before the regular licensing boards. These basic sciences are anatomy, chemistry, physiology, bacteriology and pathology. Such a law is in effect in several western states, and it insures that any practitioner, whether he be an osteopath, chiropractor or regular physician, is adequately trained and competent to diagnose disease.

Last year I made an appeal to all members of the Society to become candidates for the General Court. Three men responded, all of them from Merrimack County. Dr. Alexander, of Penacook, is president of the Senate; Dr. Blood, of Concord, is chairman of some of the more important committees in the Senate, including the Committee on Public Health; Dr. Warren Butterfield, of Concord, is a member of the House. These three men, particularly Dr. Blood, have been of tremendous help to your Committee on Public Relations.

To each county society I would suggest that the President of the Society be invited to pay an annual visit; this past year, until the matter was called to the attention of the county societies, only one had extended such an invitation. I would suggest also that county secretaries be made more frequently members of the House of Delegates. A county secretary is perhaps the best man to act as liaison officer between the group that is gathered here tonight and the several county societies.

CARLETON R. METCALF.

SPEAKER COLBY: Dr. Smith is ready with his report of the Committee on Officers' Reports, as it pertains to the Secretary's report.

DR. D. G. SMITH: The Committee on Officers' Reports wishes to express its appreciation to the officers and chairmen of committees for their promptness in submitting their reports.

We recommend the acceptance of these reports and their incorporation in the transactions of the Society.

I move that that portion of the report of the Committee on Officers' Reports be adopted.

This motion was seconded by Dr. Dye and was carried.

DR. D. G. SMITH: We recommend that the Committee on Communications and Memorials be asked to draft suitable resolutions on the deaths of Drs. Downing and Duncan. The Trustees' report includes a resolution concerning Dr. Luce. I move the adoption of this portion of the report.

This motion was seconded by Dr. Robinson and was carried.

DR. D. G. SMITH: We recommend that we continue our malpractice insurance with the Hartford Accident and Indemnity Company.

DR. SYCAMORE: I move that that portion of the report with reference to continuing the malpractice insurance with the Hartford Accident Indemnity Company be accepted.

This motion was seconded by Dr. Robinson and was carried.

DR. D. G. SMITH: We further recommend that the Vermont plan of insurance be not adopted at this time, but that the Advisory Committee on Jurisprudence be asked to study this plan and make a report with recommendations at the 1938 session of the House of Delegates.

I move the adoption of that portion of the report.

This motion was seconded by Dr. Coburn and was carried.

DR. D. G. SMITH: We recommend that a retaining fee of $100 be given to Mr. Sulloway in return for his work with the Advisory Committee on Jurisprudence and for the free consultation on malpractice cases that he has made available to every member of the Society.

I move the adoption of that portion of the report.

This motion was seconded by Dr. Robinson.

DR. KITTREDGE: Mr. Sulloway has done a lot of work for the Society and is entitled to the amount. He has been to the various county societies, has given his time and is ready to give his time again.

DR. LADD: Is there anything in our Constitution prohibiting this?

DR. H. O. SMITH: I think it would be perfectly legal.

DR. LADD: I move an amendment to the motion that the word "annually" be inserted.

This motion was seconded and was carried.

SPEAKER COLBY: I now put the question on the original motion. All those in favor will say "aye."

There was a chorus of "ayes" and the motion was carried.

DR. D. G. SMITH: We believe that this Society should co-operate with the Surgeon General of the Public Health Service in his attempt to clean up venereal disease and we suggest that our Secretary send him a letter expressing our co-operation.

We realize the difficulties under the present law in obtaining the sterilization of mentally deficient persons. We recommend that the simplification of this procedure should be studied by our Committees on Mental and Social Hygiene and Public Relations and that these committees be asked to render a report with recommendations at the 1938 session of the House of Delegates.

I move the adoption of that portion of the report.

This motion was seconded by Dr. Coburn and was carried.

DR. D. G. SMITH: We recommend that the Basic Science Law be referred to the Committee on Medical Education for its consideration.

I move the adoption of that portion of the report.

This motion was seconded and was carried.

DR. D. G. SMITH: We recommend that the Secretary bring to the attention of the county secretaries his recommendations that the President of the State Society be asked to visit each county society and that the county secretaries be made members of the House of Delegates.

I move the adoption of that portion of the report.

DR. ROBINSON: I will second the motion. I wonder, though, if you would not have to amend your by-laws in order to make the county secretaries members of the House of Delegates.

SPEAKER COLBY: This is a recommendation; it is not a mandate.

DR. LADD: This is simply a recommendation; it does not necessarily follow that a county will have to send its secretary as a member of the House of Delegates. The secretary would know what has been taking place in the county during the year and would be a great help to the delegates.

SPEAKER COLBY: Is there any further discussion? If not, all those in favor will say "aye."

There was a chorus of "ayes" and the motion was carried.

SPEAKER COLBY: Next we will hear the report of the Necrologist.

Report of Necrologist

The following deaths of members or former members of the New Hampshire Medical Society have been reported since May 25, 1936:

Eastman, Charles A., M.D., Berlin, N. H. Died February 14, 1936.

Chase, Ezra C., M.D., Plymouth, N. H. Died May 25, 1936.

Little, Charles S., M.D., Letchworth Village, N. Y. Died June 6, 1936.

Bailey, George S., M.D., Hillsboro, N. H. Died June 20, 1936.

Watson, Maurice, M.D., Manchester, N. H. Died June 22, 1936.

Gilbert, Frank Leslie, M.D., North Stratford, N. H. Died June 24, 1936.

Downing, Arthur T., M.D., Littleton, N. H. Died June 25, 1936.

Stokes, Dudley Leavitt, M.D., Rochester, N. H. Died June 25, 1936.

Johnston, Charles E., Portsmouth, N. H. Died June 29, 1936.

Dougherty, Thomas J., M.D., Somersworth, N. H. Died July 4, 1936.

Norton, Daniel C., M.D., Manchester, N. H. Died July 14, 1936.

Crowell, George Marcus, M.D., Suncook, N. H. Died August 11, 1936.

Robinson, J. Franklin, M.D., Manchester, N. H. Died September 5, 1936.

Dixon, James H., M.D., Portsmouth, N. H. Died September 20, 1936.

Dresser, Norman Bates, M.D., Berlin, N. H. Died October 20, 1936.

Delaney, Edward James, M.D., Concord, N. H. Died October 21, 1936.

Duncan, Charles, M.D., Concord, N. H. Died November 12, 1936.

Lacasse, Leon J., M.D., Manchester, N. H. Died December 4, 1936.

Luce, Thomas W., M.D., Portsmouth, N. H. Died December 11, 1936.

Carty, John D., M.D., Portsmouth, N. H. Died December 20, 1936.

Walker, Charles S, M.D., Keene, N. H. Died January 19, 1937.

Sanborn, George H., M.D., Henniker, N. H. Died January 23, 1937.

Oliver, Robert Freeman, M.D., Bradford, N. H. Died February 5, 1937.

White, William H., M.D., Goffstown, N. H. Died February 17, 1937.

Wethey, Francis Van Vechten, M.D., Enfield, N. H. Died March 5, 1937.

Guertin, Auguste Louis, M.D., Nashua, N. H. Died March 7, 1937.

Carpenter, Irving, L., M.D., Manchester, N. H. Died March 15, 1937.

Rublee, George Clark, M.D., Rochester, N. H. Died March 31, 1937.

Knowlton, John G. W., M.D., Exeter, N. H. Died April 17, 1937.

C. E. DUNBAR.

SPEAKER COLBY: The next report is that of the Trustees. I am going to ask Dr. H. O. Smith to give this report.

Report of the Trustees

FINANCIAL REPORT

for the year ending May 1, 1937

Receipts

Interest on various bank deposits	$ 495.72

Expenditure

Expenses of Dr. D. G. Smith as a delegate to the meeting of the A.M.A.	136.93
Increase in funds, other than the Benevolence Fund, in the hands of the Trustees	$ 358.79

GENERAL FUND

Deposit in the Portsmouth Trust and Guarantee Company	$ 3,165.87
New Hampshire Savings Bank	5,213.72
Nashua Trust Company	1,538.36
	$ 9,917.95

BARTLETT FUND

Deposited in the Portsmouth Savings Bank, $5,948.42 ($352.11 is a permanent fund)	
Accrued income, available for general use	$ 5,596.31
Total available for general use, May 1, 1937	$ 15,514.26

PRAY FUND

Deposit in the Strafford Savings Bank ($1,000.00 of this is a permanent fund, the income to be expended only for prize essays)	$ 1,426.66

BURNHAM FUND

Deposit in the New Hampshire Savings Bank ($1,140.00 of this a permanent fund, the income to be expended only for prize essays)	$ 2,022.59

BENEVOLENCE FUND

Deposit in the New Hampshire Savings Bank	$ 1,539.74

A small final dividend, in liquidation of the Merrimack River Savings Bank, will be paid at some indefinite future date.

The accounts of the Treasurer have been examined and found to be correctly cast and properly vouched.

Two essays have been submitted. The Trustees feel that neither quite meets the specified requirements, and for that reason no prize has been awarded.

It is expected that prizes will be offered in 1937-1938 and that notice will be sent to the members of the Society in due time.

The Trustees have placed on their records the following appreciation:

The Trustees of the New Hampshire Medical Society wish to express their deep sorrow at the passing of one of their number who, throughout his life, exemplified all that is highest and noblest in our profession.

We knew him as a resourceful physician, a skilled surgeon, wise in counsel, charitable in judgment.

As an officer of the Society he never failed to do his utmost in the promotion of its welfare.

We commend to the earnest consideration of the members of this Society, the sterling qualities and high ideals of one whose accomplishments we will do well to emulate, that man among men, Thomas W. Luce.

A. H. HARRIMAN,
HENRY O. SMITH.

DR. D. G. SMITH: We approve of the appreciation of Dr. Thomas W. Luce and we recommend that a copy of this appreciation be sent to his family. We are pleased to note the strong financial condition of the Society.

I move the adoption of this part of the report.

This motion was seconded and was carried.

SPEAKER COLBY: Dr. Wilkins, I am going to ask you to give the report of the Committee on the Control of Cancer.

Report of Committee on Control of Cancer

During the past year the chief activities of the Committee on Control of Cancer have been confined to rendering what assistance it was able to the educational campaign of the Women's Field Army of the American Society for the Control of Cancer, which was inaugurated and carried through to a successful conclusion by a large number of earnest and public-spirited women in this State, headed by Mrs. Harry W. Smith of Durham.

In addition to this activity, the Committee has sent

out to every physician in the State two letters calling attention, as usual, to particularly pertinent facts relating to some definite point of diagnosis, or facts regarding the management of cancer in certain locations.

The educational campaign above referred to has been one of the most stupendous health crusades ever attempted in the United States. Never before have such a large number of persons been engaged in the single task of informing the citizens of this country of the vital importance of early diagnosis in the control of cancer. By every publicity method this information has been spread to millions of homes and many people have learned for the first time that cancer is curable, that its curability depends upon early recognition, and that a great many cancers can be recognized very early. In confirmation of the success of this campaign we know that both during and following this effort, there has been a sudden and definite increase in the number of persons applying to doctors and to the cancer clinics for diagnosis.

This educational campaign is going to continue, and it is obviously important that the medical profession of New Hampshire keep themselves informed of the general trend of cancer treatment and to be especially well informed in the methods of differential diagnosis. We urge again upon the medical profession the very great importance of making a definite physical examination whenever a patient complains of symptoms that might possibly indicate the presence of cancer. Lack of interest on the part of some physicians in such examinations is demonstrated chiefly in such symptoms as spotting between periods, spotting or flowing after the menopause, rectal bleeding, hematuria and early sores in the mouth.

Of the $50.00 appropriated for the use of this committee last year, we are returning $22.30, and respectfully request an appropriation of $50.00 for the ensuing year.

GEORGE C. WILKINS,
GEORGE F. DWINELL,
HOWARD N. KINGSFORD.

DR. D. G. SMITH: We approve of what this Committee has done, and pledge our co-operation in the educational campaign of the Women's Field Army of the American Society for the Control of Cancer.

We recommend the appropriation of $50.00 for the continuation of the work of this Committee.

I move the adoption of that portion of the report.

This motion was seconded and was carried.

SPEAKER COLBY: I am going to ask Dr. Metcalf to read the report of the Advisory Committee on Medical Relief by Dr. Robert J. Graves.

Report of Committee on Medical Relief

The Advisory Committee on Medical Relief has had no meeting, nor has it been called upon to perform any function during the past year. No question respecting relief has been referred to it.

With the present set-up on relief, we can see no reason for the continuance of this Committee, and suggest that it be eliminated from the list.

ROBERT J. GRAVES,
JOHN P. BOWLER,
CLARENCE O. COBURN.

DR. D. G. SMITH: We believe that matters are likely to arise at any time which will require the attention of this Committee. We accordingly recommend that this committee continue as it is organized at the present time.

Mr. Speaker, I move the adoption of that portion of the report.

This motion was seconded and was carried.

SPEAKER COLBY: The next report is that of the Committee on Medical Education and Hospitals.

Report of Committee on Medical Education and Hospitals

The activities of this Committee during the past year have been concerned with the continuation of the program of the Commonwealth Fund relative to postgraduate study and to further increase in the Speakers' Bureau.

Commonwealth Fund Fellowships. The purpose and method of the Commonwealth Fund Fellowships were explained in some detail in our report of last year. The same offer was continued this year by the Commonwealth Fund, and on March 10, 1937, an announcement was sent out to the membership, with a letter from Dr. Kittredge as President. To date we have received twenty requests for application forms, which are filled out by the applicant and mailed by him to the office of the Commonwealth Fund in New York City. This is a considerable increase in number over last year.

The Commonwealth Fund granted eight fellowships last year to the following members of the Society:

Albert E. Barcomb, Farmington.
Barbara Beattie, Littleton.
Arthur W. Burnham, Lebanon.
C. G. Cayward, New Ipswich.
Peter J. Doyle, Dover.
Harold C. Pickwick, Lisbon.
Harry W. Savage, Lebanon.
Martha I. Shattuck, Portsmouth.

There seems to be considerable apathy on the part of the membership in response to such a generous offer of assistance in graduate study.

Speakers' Bureau. An effort has been made to keep the Speakers' Bureau up-to-date, and this will be continued. We do not know how much this has been used by the secretaries of the various county societies in assisting them in obtaining speakers.

JOHN P. BOWLER,
JAMES W. JAMESON,
HARRIS E. POWERS.

DR. D. G. SMITH: We are glad to note that last year eight of our members were benefited by the Commonwealth Fund Fellowships. We believe that an effort should be made to arouse the physicians to take advantage of these fellowships, and recommend that our Secretary write the hospital superintendents, suggesting to them that they have a talk at one of their staff meetings by a doctor who has received a fellowship.

I move the adoption of that portion of the report.

DR. ROBINSON: I will second that recommendation. Then I should like to ask whether the limitations have been widened.

DR. SMITH: Dr. Bowler said that the requirement that eligible men must reside in a town of under 10,000 population was not being lived up to. He thought that men in towns or cities over that size might be granted fellowships.

SPEAKER COLBY: Those in favor of the motion will please say "aye."

There was a chorus of "ayes" and the motion was carried.

DR. D. G. SMITH: We also recommend that the county society secretaries be asked to help in the matter of having a doctor speak.

I move the adoption of that part of the report.

This motion was seconded and was carried.

DR. SMITH: We believe that the Speakers' Bureau should be continued, and we recommend that the county society secretaries be furnished copies of the revised list of speakers and also be asked how many speakers they have chosen from the list.

I move the adoption of that portion of the report.

The motion was seconded.

DR. KITTREDGE: I should like to ask how many speakers have been used, and where have they spoken? I visited seven of the county societies and I do not know of any county society other than Hillsborough that made use of the Speakers' Bureau.

SPEAKER COLBY: All those in favor of the motion will say "aye."

There was a chorus of "ayes" and the motion was carried.

SPEAKER COLBY: The next report is that of the Committee on Tuberculosis.

Report of Committee on Tuberculosis

Dr. Milton J. Rosenau, former professor of preventive medicine and hygiene, Harvard Medical School, in the sixth edition of his "Preventive Medicine and Hygiene" (1935), in discussing tuberculosis, makes this significant statement as to the outlook for further control of the disease:—

"It is common experience that as the incidence of a communicable disease decreases, further reductions can be secured only at the cost of increasing expenditures of time and effort, and it is unlikely that in tuberculosis there is any exception to the law of diminishing returns. The real progress in control during the past decade has been in the practical recognition of tuberculosis as a communicable disease. Through the tuberculin test it is now possible to measure the extent of infection, and already there is evidence that it is far from universal. With the x-ray the diagnosis can be established in a stage favorable for recovery, and before the patient becomes infectious to his relatives and friends. By examination of the family contacts of patients, source of infection can be found, and further dissemination stopped. In a sanatorium, collapse therapy has shortened the period of infectivity while improving the chances for recovery. Progress in the reduction of a chronic disease not susceptible to environmental factors is of necessity relatively slow; but if the facilities now available are actually utilized, there is every reason to believe that tuberculosis is as truly preventable as the majority of the acute infectious diseases."

Your Committee quotes the above statement for the purpose of bringing to the members a word of caution as to the present status of the program for the control of tuberculosis throughout our State, the outlook for the future, and the need for continued aggressive action against the disease.

It is true that the reduction in the number of deaths from tuberculosis throughout New Hampshire since 1920 has been remarkable. Yet analysis of this reduction by years emphasizes only too well the need for caution. In the period 1920 to 1925 the number of deaths declined from 432 to 299—a drop of 133. In the period 1925 to 1930 the annual number of deaths still further declined from 299 to 232—a reduction of 67. In the period 1930 to 1935 the annual number of deaths diminished from 232 to 168, a curtailment of 64. In 1934 the total number of deaths from tuberculosis in New Hampshire was 167, and in 1935, 168. The tuberculosis mortality figure for 1936 is not as yet available, but returns from some of the larger cities now available indicate that if there is any reduction it will be very small.

Tangible evidences of increasing support for the work are seen in the new 32-bed addition to the Brown Infirmary at the Glencliff Sanatorium, and the increase in the receipts from purchases of Christmas seals. The need for additional hospital beds at the Glencliff Sanatorium has been apparent for some years. It is our belief that the resolution adopted at the last meeting of the Society urging an addition to the Infirmary Building at the Glencliff Sanatorium carried great weight with our State officials. It would seem that we have apparently reached or approximated adequate sanatorium facilities for the State.

Controlled rest, fresh air and good food still constitute the basic treatment for pulmonary tuberculosis, but in addition, some form of collapse therapy, in selected cases, is today recognized and utilized as standard treatment generally. It is the belief of most authorities that distinctly unilateral cases offer the best promise in treatment by pneumothorax. In no sense should these assisting forms of treatment be considered a "cure-all." They merely assist by producing additional rest to the diseased lung.

Some form of collapse treatment is in use at both Glencliff and Pembroke sanatoriums. During the period November 1, 1935, to November 1, 1936, there was a total of 984 pneumothorax treatments given at the Glencliff Sanatorium, and it is anticipated that some 15 patients will receive the benefits of one or more stages of thoracoplasty at that institution. The Glencliff Sanatorium endeavors to restrict the admission of patients to cases designated as favorable, that is, incipient and moderately advanced. Far advanced patients and those with complications are rejected. The work of the Pembroke Sanatorium is for advanced cases—bilateral cases and those with complications, such as tuberculosis of the larynx and intestines. The superintendent of the Glencliff Sanatorium states that the preponderance of cases admitted to that institution are moderately advanced, indicating that more careful diagnostic measures must be adopted by family physicians to catch these cases before they become moderately advanced.

The increasing use of the x-ray is adding materially in better and earlier diagnosis of disease of the chest, particularly tuberculosis. Your Committee urges more use of x-ray of the chest by members

of the Society. The superintendent of the Glencliff institution urges physicians to send in the chest x-ray films to aid in determination of admissibility to that sanatorium. The Glencliff Sanatorium and the New Hampshire Tuberculosis Association are ready to be of service in aiding in the interpretation of chest x-ray films.

The New Hampshire Tuberculosis Association is deeply grateful for the continued and increasing cooperation extended by members of the Society. During the past year more physicians have referred patients to the Association's diagnostic clinics than in any similar period in its history. The services of the field nurses are available to all physicians.

ROBERT B. KERR,
ROBERT M. DEMING,
JOHN B. SPRING.

DR. D. G. SMITH: We are pleased to learn that additional beds are being added to the Glencliff Sanatorium, and that apparently no more beds will be necessary to take care of the tuberculous patients in this state.

We especially commend the use of pneumothorax and thoracoplasty in the treatment of this disease.

We recommend that the members of this Society be urged to have more chest x-rays taken for the diagnosis of tuberculosis and suggest that their attention be called to the fact that the Glencliff Sanatorium and New Hampshire Tuberculosis Association will aid in the interpretation of the plates.

I move the adoption of this report.

This motion was seconded and was carried.

SPEAKER COLBY: Our next report is that of the Committee on Mental and Social Hygiene.

Report of Committee on Mental and Social Hygiene

During the last year much progress has been made throughout the nation in arousing public interest in the eradication of venereal diseases. Frank discussions of the problem before interested groups have helped to lift the veil of secrecy which has so long covered mention of syphilis and gonorrhea.

The family physician, of course, is the most important link in this therapeutic chain, for in most instances he sees the early cases, and the occurrence of complications will depend on his management of the case in its early stages.

Neurosyphilis in its various forms can be prevented by persistent and intelligently administered treatment. The potentialities for the development of neurosyphilis can generally be recognized through the performance of a lumbar puncture at least once during the first year of infection. Unfortunately the spinal fluid Wassermann in itself may be misleading. Complete examination of the spinal fluid, including cytology and chemistry, is indicated in every case suspected of having neurologic complications.

About 8 per cent of our new admissions to the State Hospital suffer from neurosyphilis, many of which could have been prevented through more persistent treatment when the disease was first diagnosed many years previously. Again, too many cases come to the hospital in such an advanced stage that treatment is of little avail. In spite of this, about 50 per cent of the patients are able to leave the hospital following fever and chemotherapy.

The bill before the legislature requiring the presentation of a negative Wassermann report by all applicants before issuing a marriage license should have the support of the medical profession. This Society should recommend that the State Board of Health apply for the free venereal medication available to the medical profession from the federal government.

The appropriation of State funds for the care of crippled children should receive the commendation of this Society. The proper care of crippled children has a very definite mental hygiene aspect, for the crippled child who has been supplied with a mechanical leg or arm and has been taught to become self-reliant has a far different mental attitude than the dependent one.

There is unlimited demand for more specialized instruction to the mentally retarded in our public schools. The State School at Laconia, after twenty-five years of waiting, has finally obtained an infirmary. It is over eighteen years since additional bed space for females at the State School was provided. The medical profession of the State could show more concrete evidence of interest in enlargement of the facilities of our State institutions, since in the majority of instances the doctors are the ones who solicit the acceptance of patients in these institutions.

The letters sent out from the State Hospital, in regard to the admission of only emergency cases, have produced little effect in materially reducing the number of admissions. A further expansion of the hospital's extramural mental hygiene program should receive the support and encouragement of our Society. In the Manchester clinic 113 new cases and 84 old cases were seen during the past year, representing twenty-one communities in the State.

CHARLES H. DOLLOFF,
BENJAMIN W. BAKER,
CHARLES A. WEAVER.

DR. D. G. SMITH: We recommend that this Society approve the bill before the Legislature requiring the presentation of negative blood tests for syphilis before the issuance of marriage licenses.

I move the adoption of that portion of the report.

DR. KITTREDGE: How many states have this?

DR. BLOOD: It has been in operation only in Connecticut.

SPEAKER COLBY: Does the House wish to take any action?

DR. W. J. P. DYE: I move that this recommendation be adopted.

This motion was seconded.

SPEAKER COLBY: Those in favor will signify by saying "aye."

There was a chorus of "ayes" and the motion was carried.

DR. D. G. SMITH: We recommend that the State Board of Health apply to the federal government for the free venereal medication available to the medical profession.

I move the adoption of that portion of the report.

This motion was seconded by Dr. Robinson and was carried.

DR. D. G. SMITH: We approve of more specialized instruction of the mentally retarded in our public schools. We believe that this matter should be referred to the Committee on Mental and Social Hygiene, which should work with the State Department of Education, so that a definite solution of this problem may be reached. We are pleased with the work of the State Hospital in the treatment of neurosyphilis, and we approve the expansion of its extramural activities.

I move the adoption of that portion of the report.

This motion was seconded and was carried.

SPEAKER COLBY: I am going to ask Dr. Blood to give us his report of the Committee on Maternity and Infancy.

Report of Committee on Maternity and Infancy

Five meetings were held during the year: November 24, 1936; December 23, 1936; February 19, 1937; March 5, 1937; April 16, 1937.

ACTIVITIES OF THE COMMITTEE

Study of maternal deaths, including a review of the facts and determination of the cause so far as possible. Most of the cases were investigated by a personal interview with the reporting physician, and the facts were then presented by number to the Committee. Thirty-nine deaths were reported and twenty-seven of these were reviewed by the Committee. The causes for the highest number of deaths were: cesarean section, pre-eclampsia, eclampsia and hemorrhage.

Study of stillbirths by means of a questionnaire to the reporting physician. There were 218 stillbirths reported and 139 questionnaires were returned. The leading causes of death were abnormal presentation, prematurity, toxemia of pregnancy and deformity.

Study of hospital facilities and activities in regard to their obstetric services with questionnaires sent to the 57 maternity hospitals and homes.

Study of the medical requirements to practice medicine in other states.

Review of recent literature on the advancement of obstetrics.

Review of the public health nursing set-up in the State in regard to maternal and child health work.

Presentation, in conjunction with the Maternal and Child Health Division, of an extensive program of lectures by teaching obstetricians to physicians and nurses. The lecturers were chosen from the staffs of the Boston Lying-in Hospital and the Boston City Hospital, and each gave five lectures on some obstetric subject. The course was given in Dover, Nashua, Manchester, Hanover, Berlin and Keene, with a total attendance of 1,012, of which 450 were physicians.

RECOMMENDATIONS OF THE COMMITTEE

General:

That the public be better informed concerning maternal and infant care by the medical profession, public health officials, nurses and organizations interested in this work.

A more thorough check-up on neglected maternal and infant cases by better reporting of such cases. The local organizations should be encouraged to provide assistance so that all needy cases may be hospitalized or nursing care provided.

No delivery without proper preparation and facilities, if hospitalization is refused.

Lying-in Hospitals and Homes:

A properly trained chief at the head of the obstetric service.

A ward for obstetric patients with a delivery room or rooms used only for that purpose.

Facilities for isolation of infected cases, both for the infant and the mother.

Caps, masks and sterilized gloves and gowns should be worn in the delivery room. It is reported that four physicians do not wear gloves at the time of delivery and forty do not wear masks. This practice not only means more infection, but it also lowers materially the rating of the hospital where this occurs. The licensing of these lying-in hospitals and homes is questioned until these conditions are remedied.

No patient should be left alone after the administration of a barbiturate compound. Seventy per cent of all deliveries received some form of this compound.

Proper equipment for transfusion, clyses, the resuscitation of the newborn and the care of premature infants should be available. Fifty per cent of the lying-in hospitals and homes have facilities for transfusions. Fifty per cent have resuscitation facilities.

Every child should be anointed with ammoniated mercury or other equally efficient inunction on the first day.

All attendants with respiratory infection should be excluded from the obstetric ward and nursery.

Physicians:

It is hoped that all physicians, as far as possible, will avail themselves next year of the obstetric lectures given by the Society and the State Board. One hundred and sixty-two physicians attended one or more of the thirty lectures held in the State this winter.

All physicians establishing practice in the State shall have at least one year's internship approved by the Board.

Regular prenatal visits to the physician should be required. Only three of the thirty-nine maternal death cases had regularly visited their physicians.

More time should be spent on prenatal examination and care.

All cases of antepartum bleeding or other complications should be ordered to the hospital.

Cesarean sections should be elective and only for sound obstetric indications. There were 132 sections done in 4,540 births. Eleven of these died. One hospital reports 15 out of 202 births.

The Committee is strongly of the opinion that operative obstetrics should be reduced to the absolute minimum. That forceps should never be used except in extreme emergencies or until the head is on the perineum. At present 26 per cent of all deliveries are forceps deliveries. High forceps should be ruled out altogether. Eighteen high and 55 mid-forceps were reported last year. We believe that a delay in the use of forceps would materially reduce the danger to the mother and child.

Vaginal examinations during labor should be discouraged. There are 42 per cent of the physicians still employing this method rather than the safer rectal examination, which gives all the information required. Practicing obstetricians are agreed that

vaginal examinations should not be done after the seventh month except after a thorough preparation.

Silver nitrate, or some other silver solution, should be used in the eyes of the newborn immediately after delivery.

A cord blood should be taken at every delivery for serologic examination.

Postpartum bed rest of at least ten days should be employed.

A thorough postpartum examination should be made six weeks after delivery.

It is necessary to have a higher percentage of questionnaires on stillbirths returned, in order that the Committee may more adequately evaluate the results. From the reports submitted it appears that breech deliveries show a high mortality rate. The application of forceps to the aftercoming head is recommended as a means to reduce this rate materially. Toxemia of pregnancy is another cause of a large number of deaths. We believe that the solution to this problem lies in a more rigid prenatal care in face of a rising blood pressure and the presence of albuminuria.

ENDORSEMENTS OF THE COMMITTEE

The mothercraft program sponsored by the Maternal and Child Health Division of the State Board of Health.

Graduate training in obstetrics for public health nurses.

Stricter regulations and licensing of maternity homes and hospitals admitting maternity cases.

The continuation of the social security funds for the aid of maternity and infancy work in the Maternal and Child Health Division of the State Board of Health.

The efforts made by the State Board of Health to have reports of visible congenital deformities submitted with the birth report.

The child health week program.

CONCLUSIONS OF THE COMMITTEE

The public should be educated to the importance of proper antenatal and postnatal care.

The obstetric facilities and technic in hospitals should be improved.

The physician should benefit by obstetric lectures given by competent obstetricians.

Finally, the Committee thanks the director of the Maternal and Child Health Division of the State Board of Health and the physicians for their cooperation, in making these studies, trusts that the suggestions will be carried out by the profession so far as possible, and requests their continued cooperation with the Committee for the coming year.

ROBERT O. BLOOD,
BENJAMIN P. BURPEE,
CHESTER F. MCGILL.

DR. D. G. SMITH: We believe that this Committee has submitted a remarkable report, and we wish to express our appreciation for the amount of research work and the many activities that it has carried on during the past year.

We recommend that this society urge the State Board of Health to approve, as lying-in hospitals, only those hospitals that meet the requirements enumerated in this report: namely, a trained chief at the head of the obstetric department; a ward for obstetric patients with a delivery room or rooms used only for that purpose; facilities for isolation; the requirement of the wearing of caps, masks, sterile gloves and gowns; constant nursing of a patient who has received a barbiturate compound; proper equipment for transfusions, clyses, the resuscitation of the new born, and the care of premature infants; efficient inunction of the baby on the first day; and the exclusion of all attendants with a respiratory infection from the obstetric ward and nursery.

I move the adoption of that portion of the report.

This motion was seconded by Dr. Robinson and was carried.

DR. DUBE: What are you going to do with the hospitals that do not have a trained chief? I think that is too drastic a requirement to make.

DR. D. G. SMITH: The Committee on Officers' Reports spent considerable time in discussing this problem. We felt that an attempt should be made to have one man especially interested in obstetric care practice in the hospital.

I should like to ask Dr. Wilkins, a member of the State Board of Health, if he has anything to say about the licensing of lying-in hospitals.

DR. WILKINS: Since the licensing has been taken over by the State Board of Health, there has been a very definite reduction in the number of lying-in hospitals in the State. Previous to the time that the Board of Health took it over, many of these hospitals were small institutions or homes which were licensed by the Welfare Board.

The suggestions as made by the Committee on Officers' Reports, or most of them, are excellent and can be carried out.

It is impossible in the smaller hospitals to have what we commonly call an obstetric service, as has been stated by some of the men here. But the other things regarding licensing, using the delivery room for nothing but deliveries, using gowns and masks, and so forth, can certainly be carried out in every institution we have.

In the smaller hospitals, one man on the staff could be designated as being in charge of the obstetric department; it would be his duty to see that the proper rules for the care of these patients are carried out by all of the men on the staff.

SPEAKER COLBY: I am positive that I asked for discussion of this question before I put it to a vote. The motion was made and seconded, and no discussion occurred; I put the question and the "ayes" carried it, and the question was

adopted. This discussion, of course, has been very interesting but it has occurred at the wrong time.

DR. D. G. SMITH: We approve of this Committee's suggestion that all physicians establishing practice in the State shall have at least one year's internship, approved by the Board of Registration in Medicine.

I move the adoption of this portion of the report.

This motion was seconded by Dr. Smart and the motion was carried.

DR. D. G. SMITH: We deplore the number of cesarean sections in this State. We recommend that the staffs of the hospitals in this State require the consultation and agreement of three physicians, one of whom must be the head of the obstetric department before any cesarean is performed.

I move the adoption of that portion of the report.

This motion was duly seconded by Dr. Robinson.

A MEMBER: Why three consultants?

DR. D. G. SMITH: We have recommended two consultants, but three in the group counting the original physician. That was at the suggestion of Dr. Larochelle, of Manchester, who said that it was in force in one of the Manchester Hospitals and worked very well. He said that it would be difficult to get two physicians who would agree on a cesarean section which might be unnecessary. The percentage of cesarean sections is very high.

DR. ROBINSON: Is not that required by the American College of Surgeons? Do you not have to have two consultants before a cesarean section is performed?

DR. BLOOD: It is a requirement.

DR. ROBINSON: I call for the question.

SPEAKER COLBY: Is there any further discussion? If not, those in favor of the motion will say "aye."

There was a chorus of "ayes" with only one dissenting vote; the motion was carried.

DR. D. G. SMITH: We also recommend the consultation and agreement of two physicians before the application of obstetric forceps.

I move the adoption of this portion of the report.

DR. BLOOD: Are you talking about high forceps or low forceps? There is a definite distinction.

DR. SMITH: The Committee believes that it should be all forceps, having in the back of our minds that there should be two physicians present.

DR. ROBINSON: Suppose you were called out to the country, seven or eight miles from your office, and you found that it was necessary to put on forceps. Have you considered that?

DR. DYE: I will second the motion.

SPEAKER COLBY: The discussion may continue.

DR. BLOOD: I suggest that this be amended in some way. I put on low forceps over the head on the perineum. If you said "high forceps" or "mid-forceps" I would be very glad to vote for the motion. But on all forceps, I think you would be making a rule to be broken.

DR. SMITH: If it were changed to read "before the application of high or mid-forceps" that might be clearer.

DR. NORRIS H. ROBERTSON: I move that such an amendment be made.

This motion was duly seconded.

SPEAKER COLBY: Then will you allow your motion to read, with the amendment, as follows: We also recommend the consultation and agreement of two physicians before the application of high- or mid-forceps.

DR. SMITH: Yes.

SPEAKER COLBY: All those in favor of the amendment to the motion will please signify by saying "aye."

A few "aye" votes were heard.

SPEAKER COLBY: Those not in favor of the amendment to the motion will signify by saying "no."

A chorus of "no" votes was heard, and the motion was lost.

SPEAKER COLBY: Now, we return to the original motion. Those in favor of the original motion will signify by saying "aye."

Three "aye" votes were heard.

SPEAKER COLBY: Those not in favor of the motion will signify by saying "no."

A chorus of "no" votes was heard, and the motion was lost.

DR. D. G. SMITH: Mr. Speaker, we recommend that our Secretary be instructed to notify the hospital superintendents of this action relative to cesarean sections.

I move the adoption of that portion of the report.

This motion was seconded by Dr. Robinson and was carried.

DR. D. G. SMITH: We believe, if any series of obstetric lectures be given in the future, that the details of these meetings should be arranged in conjunction with the local medical societies and hospital staffs.

Mr. Speaker, I move the adoption of that portion of the report.

This motion was seconded by Dr. Ladd and was carried.

SPEAKER COLBY: There is one remaining report, and that is the Report of the Committee on Child Health.

Report of Committee on Child Health

During the past year our interest has centered in the efforts of the Board of Health to formulate a satisfactory program for the expanding activities of the Maternal and Child Health Division.

We are gratified that a physician has been appointed to direct this work and the Crippled Children's Services.

Progress was, of course, interrupted by the illness and death of Dr. Duncan shortly after Dr. Barton had assumed the directorship. At present, however, the work is progressing steadily under the direction of Dr. Farrall, who has recently been appointed to fill the vacancy made by the resignation of Dr. Barton.

The members of your Committee, in their capacity as members of the State Advisory Committee on Maternal and Child Health, and the Technical Advisory Committee, have been co-operating with Dr. Farrall.

Last year your Committee urged the Society to recommend the adoption by the Board of Health of a uniform communicable disease code. We are gratified to be able to report that the communicable disease regulations are now being modified to conform to the best modern practice. This will eliminate the annoying discrepancies between instructions to school physicians and to local health officers.

We recommend that the Society co-operate with the Board of Health in arranging a series of lecture courses in pediatrics comparable to those in obstetrics held this year. While a number of subjects might advantageously be considered, we are, as last year, especially anxious to further the extension of preventive pediatric supervision of normal children by their private physicians. To this end, we would like to have included a consideration of recent improvements in methods and materials for immunization. We hope the number of childhood deaths from appendicitis can be lowered by more discussion of this disease, so treacherous in children, before both lay and medical groups. Other possible subjects, as infant nutrition, skin disorders, vitamins, and so forth, readily suggest themselves.

We recommend to the Society consideration of the need for a longer period of supervision of cases of anterior poliomyelitis than is usually possible under conditions of private practice. It is generally recognized that too early unsupervised use of partially paralyzed muscles, even months after the onset of the disease, may do irreparable harm.

We hope that the growing realization of the needs of crippled children, resulting in an increase in public funds designated for their aid, will shortly make assistance in such cases available on request to the practitioners of the State.

We have in mind, first of all, follow-up visits to be sure the patients have medical care as long as it is necessary. Instruction of mothers by demonstration of massage and passive and active motions, the facilitation of orthopedic consultations when necessary, possibly taking an occasional child to where a pool is available, all these may be of the utmost importance in preventing or lessening the crippling effects of the disease.

We again feel that if free diphtheria toxoid and smallpox vaccine are available for needy cases, immunizations in the doctor's office instead of in free clinics will be facilitated. At present the Board of Health does not have funds available for this purpose.

Finally, we can recommend the encouragement of more frequent discussion of child health problems before local meetings. There are available in New Hampshire a number of practitioners who are able and, I am sure, willing to give talks on such subjects. If we can be of any assistance in finding speakers for such occasions, we shall be glad to be of service.

TRAVIS P. BURROUGHS,
FRANKLIN N. ROGERS,
COLIN C. STEWART.

SPEAKER COLBY: This report will be referred to Dr. Smith and his Committee on Officers' Reports.

DR. D. G. SMITH: The serum treatment of pneumonia was discussed at a recent meeting of the Hillsborough County Medical Society. Dr. Roderick Heffron of the Massachusetts Department of Public Health outlined the educational program that has just been completed there. This included lectures to the doctors, consultations, the establishment of typing and serum centers throughout the State, and the furnishing of serum without cost to the doctors.

It seemed to the Hillsborough County Medical Society that a similar program might be instituted in this State, and it was voted that the matter be referred to this House of Delegates for study.

DR. ROBINSON: It is a matter for the State Board of Health, unless you want to recommend to the State Board of Health that it be done. I will put that in the form of a motion, then, that this recommendation be made to the State Board of Health.

This motion was seconded by Dr. Coburn and was carried.

DR. D. G. SMITH: I move that this pneumonia program receive the approval of the New Hampshire Medical Society.

This motion was seconded and was carried.

DR. D. G. SMITH: Mr. Sulloway, speaking before the Hillsborough County Medical Society, said that he believes that the statute concerning the commitment of mental patients to the State Hospital can be revised so that physicians making the commitments will be better protected against malpractice suits.

I move that this Society ask the Committee on Mental and Social Hygiene to study the com-

mitment and to consult with Mr. Sulloway and that the New Hampshire Bar Association be asked to co-operate in this study.

This motion was seconded by Dr. Robinson and was carried.

DR. D. G. SMITH: I have a communication from the Philadelphia County Medical Society relating to the establishment of a Department of Public Relations in the American Medical Association. It also speaks of radio advertising as proposed by Mr. E. H. Bobst, president of Hoffmann-LaRoche Company.

The Hillsborough County Medical Society gave its approval to national radio advertising, if controlled and directed by the American Medical Association. The Hillsborough County Medical Society voted to refer the matter to the House of Delegates of the Society.

Accordingly, I move that this matter be referred to the Committee on Communications and Memorials.

This motion was seconded by Dr. Smart and was carried.

DR. ROBINSON: I now move that we adjourn.

This motion was seconded and was carried.

[Whereupon, the meeting was adjourned at eleven forty-five o'clock in the evening, to reconvene at eight-thirty on Tuesday morning, May 18.]

MAY 18, 1937

The second meeting of the House of Delegates convened at the Hotel Carpenter, Manchester, on May 18, at eight-thirty o'clock in the morning, with Speaker Cleon W. Colby presiding.

The following members answered the roll call:

The President, ex-officio
The Vice-President, ex-officio
The Secretary-Treasurer, ex-officio
Dr. H. C. Sanders, Jr.
Dr. A. L. MacMillan
Dr. F. J. C. Dube
Dr. S. T. Ladd
Dr. H. O. Chesley
Dr. H. O. Smith
Dr. D. G. Smith
Dr. G. C. Wilkins
Dr. W. J. Paul Dye
Dr. Norris Robertson
Dr. C. O. Coburn
Dr. F. P. Lord
Dr. F. M. Dinsmoor
Dr. L. K. Sycamore
Dr. J. J. Morin
Dr. E. J. Stone

SPEAKER COLBY: I am going to call upon Dr. Leslie K. Sycamore of the Committee on Communications and Memorials.

DR. SYCAMORE: I think it is necessary to say a little bit about this plan, which brought up the question before the Committee. Most of you may have read this circular which I have in my hand. Briefly, E. H. Bobst, the president of Hoffmann-LaRoche Company, proposes that in order to put the physician's viewpoint before the public, we should devise effective propaganda.

He suggests, specifically, a nationwide, coast-to-coast radio hook-up, over at least eighty stations, using the best time available and the best talent available, and he estimates that that would cost about $400,000 for forty weeks or a year's program.

He proposes that this be underwritten by the ethical pharmaceutical houses, out of their advertising appropriations. He states:

"To start the ball a-rolling, I am willing to pledge our company to give the sum of $100,000 in annual installments of $20,000 for the next five years, under the following conditions:

"First, that other pharmaceutical concerns of acceptable ethical standing raise the balance of the $400,000 required annually.

"Secondly, that the money be given to the American Medical Association without strings or reservations.

"Thirdly, that the contributing pharmaceutical houses appoint a committee to meet with a committee of physicians appointed by the American Medical Association for the purpose of co-operation in putting the advertising plans into effect.

"Finally, that the names of the contributors to this fund shall never be made known to the public in any form of advertising, either directly or indirectly."

Consequently, the public at large has little appreciation of the multiplicity and complexity of the problems involved. In order that the public may be adequately informed, it is imperative that an active campaign of education be carried out to present the physician's viewpoint to the public.

Obviously, such a campaign can be carried on effectively only on a national scale, and ethically only by organized medicine; in other words, by the American Medical Association.

Therefore, the Committee feels that the Society should recommend the immediate inauguration by the American Medical Association of such a campaign of lay education, and urge the vigorous prosecution of the program by means of utilizing all legitimate advertising mediums; and, that this Society should endorse the proposal for radio advertising, as outlined by E. H. Bobst, president of Hoffmann-LaRoche, Inc.

DR. D. G. SMITH: I move that the Committee on Communications and Memorials be instructed to draft a general report on this situation, and submit this report to the House of Delegates tomorrow morning.

This motion was seconded and was carried.

SPEAKER COLBY: The next report to be heard this morning is the report of the Committee on Medical Economics.

Report of Committee on Medical Economics

The Committee on Medical Economics was asked to investigate, unofficially, the matter of fees for workmen's compensation. In examining this question, your Committee has found it more extensive and difficult than anticipated, and has not yet obtained sufficient data to make a report at this time. It is willing to continue this work, if this is desired. The Committee itself knows of nothing further demanding its deliberation.

FREDERIC P. LORD,
TIMOTHY F. ROCK.

SPEAKER COLBY: This Committee's report will be referred to the Committee on Officers' Reports.

We will hear from Dr. Smith now.

DR. D. G. SMITH: We recommend that the Committee on Medical Economics be continued, and that it be asked to continue its study of fees in workmen's compensation cases.

I move the adoption of this portion of the report.

This motion was seconded by Dr. Wilkins and was carried.

DR. D. G. SMITH: With reference to the report of the Committee on Child Health, we report as follows:

We recommend that this Society co-operate with the State Board of Health in arranging a series of lecture courses in pediatrics, provided that the lectures be made interesting and practical to the general practitioner.

I move the adoption of that portion of the report.

This motion was seconded by Dr. Dye and was carried.

DR. D. G. SMITH: We recommend that our Secretary bring to the attention of the county secretaries the Committee's recommendation relative to the discussion of child health problems.

I move the adoption of that portion of the report.

This motion was seconded by Dr. Ladd and was carried.

DR. D. G. SMITH: That completes the report of the Committee on Officers' Reports.

SPEAKER COLBY: Is there any further business to come before the meeting this morning? If not, a motion to adjourn is in order.

DR. ROBINSON: I move that we adjourn, untill tomorrow morning at eight-thirty.

This motion was seconded and was carried.

[Whereupon, the meeting was adjourned, to be resumed Wednesday morning, May 19, at eight-thirty o'clock.]

MAY 19, 1937

The third meeting of the House of Delegates convened at the Hotel Carpenter, Manchester, on May 19, at eight-thirty o'clock in the morning with Speaker Cleon W. Colby presiding.

The following members responded to the roll call:

The President, ex-officio
The Vice-President, ex-officio
The Secretary-Treasurer, ex-officio
Dr. D. G. Smith
Dr. C. O. Coburn
Dr. A. L. MacMillan
Dr. L. K. Sycamore
Dr. H. O. Smith (substitute delegate from Hillsborough County, in place of Dr. Kittredge)
Dr. F. J. C. Dube
Dr. W. J. Paul Dye
Dr. H. O. Chesley
Dr. C. L. Smart
Dr. H. C. Sanders, Jr.

SPEAKER COLBY: Gentlemen, we have one matter left over from yesterday's meeting; the matter of radio advertising as proposed by Mr. E. H. Bobst, president of Hoffmann-LaRoche Company.

DR. L. K. SYCAMORE: Your Committee moves the adoption of the following declaration:

The New Hampshire Medical Society urges the vigorous prosecution by the American Medical Association of a campaign of lay education, using all legitimate advertising mediums.

This report is signed by Leslie K. Sycamore, Clarence O. Coburn, and Andrew L. MacMillan.

SPEAKER COLBY: You have heard the motion. What is your pleasure?

This motion was seconded and was carried.

SPEAKER COLBY: Is there any new business?

DR. DYE: I move that the next meeting be held in Manchester. I should also like to move that we give a vote of thanks to the Manchester doctors and the Committees for their fine hospitality this year.

This motion was seconded by Dr. MacMillan and was carried.

SPEAKER COLBY: Our Nominating Committee has arrived. I am going to call upon Dr. Chesley for their report.

DR. H. O. CHESLEY: The following is a list of candidates presented for your consideration for the coming year:

President: Samuel T. Ladd, Portsmouth; Frank M. Dinsmoor, Keene; Fred E. Fernald, Nottingham.
Vice-President: James B. Woodman, Franklin; Clarence O. Coburn, Manchester; James A. Ferguson, Lancaster.
Speaker of the House of Delegates: Richard W. Robinson, Laconia.
Vice-Speaker of the House of Delegates: W. J. Paul Dye, Wolfeboro.
Councilors: Richard E. Wilder, Coos County; Charles E. Smith, Carroll County; Clifton S. Abbott, Belknap County; Arthur W. Burnham, Grafton County; Frank M. Dinsmoor, Cheshire County; Emery M. Fitch, Sullivan County; Henry H. Amsden, Merrimack County; Timothy F. Rock, Hillsborough County; Herbert L. Taylor, Rockingham County; John A. Hunter, Strafford County.
Trustee: Frederic P. Lord, Hanover.
Delegate to the A. M. A.: Deering G. Smith, Nashua.
Alternate Delegate to the A. M. A.: Emery M. Fitch, Claremont.
Necrologist: Henry H. Amsden, Concord.
Delegates to the New England State Meetings:
Maine—Louis B. Marcou, Berlin; Fred E. Clow, Wolfeboro.
Vermont—Henry H. Dearborn, Milford; J. J. Morin, Rochester.
Massachusetts—John D. Spring, Nashua; Walter G. Wroblewski, Nashua.
Rhode Island: Alphonso F. Raynes, Portsmouth; Edward R. B. McGee, Berlin.
Connecticut—Louis C. Ager, Rutland, Mass.; Arthur W. Burnham, Lebanon.

Committee nominations are as follows:

Amendments to the Constitution and By-Laws: Henry O. Smith, Fred E. Clow, Emery M. Fitch.
Control of Cancer: George C. Wilkins, Howard N. Kingsford, George F. Dwinell.
Medical Economics: Frederic P. Lord, Timothy F. Rock, Leslie K. Sycamore.
Medical Education and Hospitals: John P. Bowler, Harris E. Powers, James W. Jameson.
Mental and Social Hygiene: Charles H. Dolloff, Benjamin W. Baker, Charles A. Weaver.
Public Relations: The President, the Vice-President and the Secretary-Treasurer, Robert J. Graves, John F. Holmes.
Publication: Carleton R. Metcalf, Henry H. Amsden, Warren H. Butterfield.
Scientific Work: Carleton R. Metcalf, Frederick P. Scribner, Richard W. Robinson.
Tuberculosis: Robert B. Kerr, Robert M. Deming, John D. Spring.
Advisory Committee on Medical Relief: Robert J. Graves, John P. Bowler, Roland J. Joyce.
Child Health: Colin C. Stewart, Jr., Travis P. Burroughs, Franklin N. Rogers.
Maternity and Infancy: Robert O. Blood, Benjamin P. Burpee, Chester F. McGill.

SPEAKER COLBY: You have heard the report of the Nominating Committee. What is your pleasure?

DR. H. O. SMITH: I move that the Secretary be instructed to cast one ballot for the election of Samuel T. Ladd as President of the Society.

This motion was seconded and was carried.

SPEAKER COLBY: The Secretary has cast one ballot for the election of Samuel T. Ladd as President, and I declare him duly elected for the ensuing year as President of this Society.

Nominations are now in order for Vice-President. Hearing no further nominations, I declare the nominations closed, and we will proceed to ballot.

SPEAKER COLBY: A total of eleven votes were cast; six were for Clarence O. Coburn and five for James B. Woodman.

Without objection, I declare Clarence O. Coburn duly elected Vice-President of the Society for the ensuing year.

DR. CHESLEY: I move that the Secretary cast one ballot for the remaining nominees for their respective offices, as named in the Nominating Committee Report.

This motion was seconded and was carried.

SPEAKER COLBY: The Secretary has cast one ballot for the remaining officers of the Society, and I declare them duly elected for the ensuing year.

DR. COBURN: May I interrupt to say that there is a Committee downstairs that wishes to come before the delegates to speak about bathing in Massabesic Lake.

The representative of the Chamber of Commerce then spoke on the subject of bathing in the lake waters.

SPEAKER COLBY: For the purposes of the record, may I state what I consider the Committee's request is. They wish the House of Delegates to go on record as being opposed to any legislation which will open Massabesic Lake to pollution in any form, principally by swimming.

This question is now open for a motion.

DR. D. G. SMITH: I move that the Committee on Communications and Memorials draft a resolution to the effect that the New Hampshire Medical Society is opposed to opening our lakes to swimming where the water is used for drinking.

SPEAKER COLBY: Do the members of the House understand this motion? This motion is to refer this matter to the Committee on Communications and Memorials, with specific instructions, except as to the exact wording, that we are opposed to swimming in lakes. The report that they bring in is to be accepted in advance by this House of Delegates.

This motion was seconded and was carried.

SPEAKER COLBY: Is there any unfinished business to come before the meeting?

If not, a motion to adjourn is in order.

DR. W. J. PAUL DYE: I move that we adjourn.

This motion was seconded and was carried.

[Whereupon, the meeting was adjourned at nine-thirty o'clock in the morning on May 19.]

MISCELLANY

HOSPITALS

A new wing is being added to the Memorial Hospital in Whitefield. This new building, 82 feet by 42 feet and two stories in height, is to be on the same lines as the present building. On the upper floor will be the nurses' quarters, superintendent's room and recreation rooms. The lower floor will provide a nursery and maternity ward.

A new urography table and additional equipment have been purchased by the New Hampshire Memorial Hospital, Concord, for the x-ray room.

The board of trustees of the New Hampshire Memorial Hospital, Concord, announced recently that Dr. George A. Leland, of Boston, Mass., Dr. Franklin Rogers, of Manchester and Dr. George E. Pender, of Portsmouth, had been appointed consulting physicians, and that a building program which contemplates the addition of a new wing, to cost $100,000, for the care of chronic cases had been adopted.

NURSES

Miss Minnie Lang has tendered her resignation as superintendent of the Alice Peck Day Memorial Hospital of Lebanon to take effect June 1. Miss Lang has been superintendent of this hospital since it was first opened in February, 1932. She was a graduate of the Nurses' Training School at the Mary Hitchcock Hospital at Hanover.

COUNTY MEETINGS

The spring meeting of the Merrimack County and Center District Medical Society was held at the State Hospital, Concord, on the evening of April 7. The scientific part of the meeting consisted of a clinicopathological conference on some of the more common neurologic conditions. Patients were presented and then discussed by Dr. H. Houston Merritt and Dr. Leo Alexander of the Department of Neurology and Neuropathology of the Boston City Hospital.

Lantern slides of surgical operations were shown by Dr. R. J. Turley, of Meredith, at the supper meeting of the Belknap County Medical Society at New Hampton School on Tuesday, April 13. Dr. Harry Cheney, of Campton, president, presided at the meeting.

The twenty-fifth semiannual meeting of the Hillsborough County Medical Society was held at the Nashua Country Club on Tuesday, May 4. Dr. Roderick Heffron, of Boston, gave an address on "Pneumonia, Its Treatment with Serum and Its Prevention." Dr. William J. Paul Dye, of Wolfeboro, spoke on "Traumatic Injuries of the Hands with Particular Reference to a Method of Tendon Suture."

The spring meeting of the Grafton County Medical Society was held at the County Hospital, Woodsville, on April 2. Dr. Samuel T. Ladd, of Portsmouth, vice-president of the New Hampshire Medical Society, gave a brief address on "The Civic Responsibility of the Doctor in the Community," urging more active interest and personal participation in public affairs by physicians. Dr. John Rock, of Boston, gave an authoritative presentation of the subjects, "The Causation and Diagnosis of Sterility" and "A Consideration of the 'Safe Period.'"

CLINICS

The State Board of Health, Division of Maternity and Infancy, conducted a child health clinic on April 27. Drs. Chester M. Wiggin, of Conway, and R. J. Marvel, of Bartlett, were the examining physicians. The field nurse, Vivian Jennings, was in charge of the clinic.

An orthopedic clinic was held at the Nurses' Home, Laconia, on May 3, under the direction of Dr. Ezra A. Jones, of Manchester.

Cancer clinics were held at the Laconia Hospital on Tuesday mornings, May 11 and May 25. Dr. Clifton S. Abbott, of Laconia, was in charge.

WOMEN'S AUXILIARY

The twelfth annual meeting of the Women's Auxiliary of the New Hampshire Medical Society was held on Tuesday and Wednesday, May 18 and 19, at the Hotel Carpenter in Manchester. Greetings were extended by the state president, Mrs. Carleton R. Metcalf, and an address, "Conscience During Adolescence," was given by Dr. John Murray, of Boston, attending psychiatrist at Dartmouth College and at St. Paul's School, Concord. At the luncheon on Wednesday, guest speakers were Dr. Frank E. Kittredge, president of the New Hampshire Medical Society and Dr. Charles Gordon Heyd, president of the American Medical Association. At the business meeting, reports of state officers, committee chairmen and county presidents were given, and an election of officers was held.

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTEMORTEM AND POSTMORTEM RECORDS AS USED IN WEEKLY CLINICOPATHOLOGICAL EXERCISES

FOUNDED BY RICHARD C. CABOT, M.D.

TRACY B. MALLORY, M.D., *Editor*

CASE 23251

PRESENTATION OF CASE

A 40-year-old Greek shoemaker was admitted complaining of weakness, loss of appetite and swelling of the abdomen.

About 3½ years before admission the patient developed a penile sore which was considered to be syphilitic. Serologic studies were positive, and during the succeeding 2 years intensive intravenous and intramuscular therapy was administered. There were no significant abnormal reactions to this treatment, and there had never been any jaundice. A year before coming to the hospital treatment was discontinued, and several blood Wassermann tests were negative. He remained well for about 5 months and then gradually developed weakness and anorexia. At this time he noted vague, dull pain in both flanks and developed nocturia of three or four times. On one or two occasions there was slight puffiness about his eyes. A physician was consulted, albumin was found in the urine, and the patient was told that he had kidney trouble. Three and a half months prior to entry he first noted that his abdomen was swollen. The urinary output diminished, and the nocturia disappeared. Weakness and anorexia increased progressively, and he had frequent nausea. Two and a half months preceding entry abdominal swelling became marked, and dyspnea associated with a distressing nonproductive cough appeared. These symptoms were relieved by abdominal paracentesis, but returned rapidly as the abdominal fluid reaccumulated, and another tap was necessary a month later. The ascites again recurred rapidly and the patient became very weak and nauseated. On occasion the patient felt slightly feverish.

There was a questionable story of rheumatic fever in childhood. At the age of 10 years he had malaria and a mass in the left upper quadrant which was said to be spleen. Twenty years before entry the patient entered this hospital because of vague stomach trouble. X-ray studies of the gastrointestinal tract, gall bladder and abdomen were negative at this time and the patient was discharged after 12 days with a diagnosis of tuberculous peritonitis and splenomegaly. He had not been operated upon. Two years later he developed bilateral pneumonia following an attack of influenza. He was told at that time that he had damaged kidneys. During his illness his abdomen became greatly swollen, and it was necessary to tap it and remove a great deal of fluid. Other pertinent details of this illness were not recalled. Seven years later an appendectomy was performed at another hospital. The operative findings were not available.

Physical examination showed a well-developed and poorly nourished man propped up in bed in no acute discomfort. There was pallor of the mucous membranes, and large, firm, nontender lymph nodes were palpable in both axillae. The eyes were negative and the fundi clear. The heart was slightly enlarged to the left, and a harsh systolic murmur was audible at the apex. The blood pressure was 105/60. The lungs were resonant throughout and the breath sounds were normal. At both bases posteriorly numerous moist inspiratory rales were heard. The abdomen was distended, the umbilicus pouting, and the superficial veins were engorged. A fluid wave was elicited. A vague mass was palpated in the left upper quadrant which could not be definitely demonstrated as spleen. The liver was not felt. There was slight edema of the ankles.

The temperature, pulse and respirations were normal.

Examination of the urine showed a specific gravity of 1.026, with a trace of albumin. The sediment contained many red blood cells, 10 white blood cells and 1 or 2 granular casts per high power field. Repeated examinations showed essentially similar findings although the number of red blood cells gradually diminished to 1 or 2 per high power field. The blood showed a red cell count of 3,800,000, with a hemoglobin of 75 per cent. The white cell count was 4,000, 55 per cent polymorphonuclears. Two stool examinations were negative. A blood Hinton test was positive, but a Wassermann test was negative. The nonprotein nitrogen of the blood serum was 27 mg. per cent. A liver function test showed 0 to 5 per cent retention of dye at the end of an hour. A phenolsulphonephthalein test showed 55 per cent excretion of the dye at the end of an hour. The serum protein was 5.9 gm. per cent and the serum cholesterol 187 mg. per cent. The Takata-Ara test was negative. A blood sedimentation rate was 0.6 mm. per minute. The serum calcium was 8.69 mg. per cent and the serum phosphorus 3.2 mg. per cent. A urine concentration test showed a maximum specific gravity of 1.040.

A gastrointestinal series showed an indeterminate irregularity at the lower end of the esophagus. The stomach was slightly displaced

to the right by a mass in the left upper quadrant, but the remainder of the gastrointestinal tract was negative. Another x-ray film showed persistent irregularity of the lower 5 cm. of the esophagus, a finding very suggestive of varices. A plain film of the abdomen showed calcification in the lower border of the left upper abdominal mass. The outlines of the psoas muscles were hazy, a finding consistent with the presence of fluid in the abdomen. A film of the chest showed the diaphragm high in position, but motion was good. The right leaf was lobulated, and there was a more localized lobulation in the anteromedial portion of this part of the diaphragm. The lung fields were clear, and the heart, although transverse in position, was otherwise normal. Another plain film of the abdomen showed the mass in the left hypochondrium with linear calcification in its lower margins. Similar calcification was visible in the lower medial aspect of the mass, and the mass was lobulated in this region. Above this area was a conglomeration of calcified material, and there were parallel lines of calcification in this region. An intravenous pyelogram was essentially negative.

Shortly after entry an abdominal paracentesis produced 5,000 cc. of cloudy brownish fluid with a specific gravity of 1.010. Cell count showed 92,000 red blood cells and 76 white blood cells per cu. mm. The fluid reaccumulated rapidly, and 12 days later 7,000 cc. of similar fluid was removed. The patient's course in the hospital was essentially uneventful except for two brief periods, during which the patient had chills and fever up to 104°F. The last of these episodes occurred on the fifteenth hospital day. Subsequently he became afebrile, and 9 days later a laparotomy was performed.

Differential Diagnosis

Dr. Wyman Richardson: We do not know when this man left Greece, but I think there is evidence that he had malaria in Greece at the age of 10.

One wonders what led to the diagnosis of tuberculous peritonitis, as there seems to be nothing in the history that would suggest it. Presumably at that time he did have fluid in the abdomen, otherwise I should not think they would have made that diagnosis.

The point we should bear in mind is whether we are going to link up his present ascites with the question of tuberculous peritonitis that he had 18 or 20 years before his present illness. I think that that may be possible. However, we will take that up later.

The symptoms we have to explain are ascites, anorexia, weakness, albuminuria, with some renal changes, and the other symptoms—dyspnea, and so forth—which are secondary to the ascites. Cirrhosis of the liver comes to mind at once, and I rule it out at once, which is a dangerous thing to do in this case. In the first place, he is young for alcoholic or portal cirrhosis. He has ascites, and a question of splenomegaly. Also against this diagnosis are the facts that he had ascites 18 years previously, that he had a negative Takata-Ara test, that he had no evidence of dye retention and that he seems to have become pretty sick in a short time, without a long progressive story and without hemorrhages; also, chills and fever in this type of cirrhosis would seem to me to be rather unusual. The other kinds of cirrhosis are typically associated with recurring jaundice. Syphilis, hepar lobatum, should be considered, but it is too soon after his known lesion, I think, to consider this diagnosis seriously, unless he had had syphilis for a much longer time. Also, to produce this amount of ascites, I should expect that there would be slight jaundice in this type of disease.

What type of neoplasm would account for the entire picture in this case? Neoplasm of the liver rarely produces this amount of ascites without more evidence of its presence. There is no very large mass. The only question of mass is in the left upper quadrant. I suppose he could have malignancy of the liver, but, as I say, I would not expect visible varices and this repeatedly recurring ascites. I do not see how one can have a neoplasm in the abdomen to produce this ascites without widespread peritoneal involvement; but that is hardly possible in a man of this age without any definite evidence of malignancy. He had a trace of albumin for quite a while but no evidence of Bence-Jones protein. We will rule out myeloma on the basis of a normal serum protein.

The first things that occurred to me were that this man was a Greek, that in Greece there are many dogs, and that if we thought of a diagnosis of echinococcus disease of the liver we might account for numerous peculiar findings in the x-ray. Before discussing that more thoroughly I would like to see more of these calcified areas of which they speak.

X-Ray Interpretation

Dr. George W. Holmes: This shows the mass best. It is on the left side in the lateral view. It is a very unusual shape for calcification. It is not characteristic of calcified glands and does not show the nodules that one usually sees in the spleen in tuberculosis.

Dr. Richardson: Can you see the kidney there?

Dr. Holmes: Here are films that show the renal pelvis very well. You cannot make out much of the outline of the kidney substance, though I think you can see the lower pole there. I doubt if the calcification was in the kidney. In this film it is pretty far forward. This is

the outline of the colon on the left side, and this I take to be the level of the diaphragm. So, if there is a large mass between the hepatic flexure and the diaphragm in the region of the spleen, and somewhere in that same area, or near it, is this large area of calcification, it seems to be more likely that it is in the spleen or in the adrenal. One would have to consider an adrenal tumor as a possibility, but an enlarged spleen would do the same thing. It is a little far forward for adrenal, I think. Then, this unusual diaphragmatic outline that you see here suggests changes such as you get with a very irregular liver beneath the diaphragm. It must be nodular.

This film was taken at the last admission and shows a high diaphragm and a lot of fluid in the abdomen. Then we have a film showing the character of the esophagus, and I think that I would be rather more in favor of varices than is stated in the report. Some of the films show a fairly normal esophagus, whereas others, such as this one, show quite distinct shadows.

I rather think this has something to do with the spleen. What it is, I do not know. It is an area of calcification. The shape would suggest blood vessels somewhat, perhaps an aneurysm. The stomach, the lungs and the heart are essentially negative. The liver is definitely enlarged, and the spleen is probably abnormal.

Dr. Richardson: You have not seen the spleen?

Dr. Holmes: No, but I cannot explain the mass any other way.

Dr. Richardson: Can it be a large mass in the left lobe of the liver?

Dr. Holmes: Yes, it is possible; but it goes through to the chest wall here.

Dr. Chester M. Jones: After the first abdominal paracentesis there is no mention of what was felt after the fluid had been removed.

Dr. Richardson: Apparently the stomach is not displaced.

Dr. Holmes: There is focal displacement there. He has a high stomach. The most definite x-ray finding is this calcified mass on the left. I do not know this case, and I am not holding back. I am giving you all the information that I have.

Differential Diagnosis (Continued)

Dr. Richardson: Then, we have x-ray evidence of a liver that shows large nodules which give this curious shape to the diaphragm. We have x-ray evidence of calcification, which, as Dr. Holmes has said, is in the region of the spleen or possibly of the adrenal, or possibly of some mass involving the liver. I wanted to call that material the calcified material which one sees in echinococcus cyst, and I still think that is a possibility, in view of the evidence of a large nodular liver. I have never seen the picture though, so that I do not know how it looks.

Dr. Holmes: I might say that is not the picture that we usually see in calcification of the walls of an echinococcus cyst. I do not say that it could not be that, but usually the areas are circular, thin plaques along the walls of the cyst.

Dr. Tracy B. Mallory: An echinococcus complement fixation test was done on this man and was negative, but it was felt that the antigen was so very old that it was unreliable.

Dr. Richardson: If we start with the assumption that he has tuberculosis, we may think of calcification in the adrenal, but the symptoms are not those of Addison's disease.

If we say that he has cancer, a good many things are very difficult to explain. I do not think that he could have had it for 18 years; and why he should have so much ascites is difficult to explain, unless there was considerable destruction of the liver or unless there was secondary disease in the liver. I cannot conceive of tuberculosis producing all these changes in the liver and I am going to rule it out in this patient.

Rupture of cysts into the abdominal cavity or rupture of cysts anywhere is usually accompanied by definite, recurring episodes of pain. He had recurring attacks of chills and fever which might represent either infection in the cyst or rupture of the cyst.

We do not explain the large nodes in the axilla. I have racked my brains over that and cannot see how it fits into the picture. It apparently did not make much impression because these glands were not biopsied. I am going to leave them out of the discussion and call the condition, axillary lymphadenitis.

Another difficult thing about this patient is the kidney situation. He has had some history of difficulty with his kidneys, according to the story, and he has had albuminuria, with a large trace of albumin; nevertheless, he could concentrate to a very high level, and the renal function was good. The blood pressure was low, and there was no evidence of acute or chronic nephritis, and I cannot seem to explain it on any basis except as being secondary to a chronic liver disease in which one does find hematuria, although albuminuria is by no means so common. Still, I will say that the urinary picture is secondary to the liver disease. I considered the question of mercurials in regard to producing lowered renal function, due to a tubular nephritis; but the symptoms came on too long after the mercury was given. Some 6 months elapsed after he had stopped taking the diuretic. Moreover, we do not know that he had mercury, so we have to leave that out.

Echinococcus cyst of the kidney could be considered, but in this case if you had rupture into

the pelvis of the kidney you would expect a great deal of detritus in the urine, which you do not have here—just albumin and red cells. Furthermore, if there was any degree of echinococcus disease of the kidney, there would be some distortion of the pelvis of the kidney, and these pyelograms are normal. So I am left not knowing just what the kidney picture is.

I am going to stand by my original thought,—that this man was a Greek, that he had recurring liver disease, that he had a large nodular liver, and that he had a curious area of calcification in a large mass on the left side,—and I do not see any good explanation for it, unless it be calcification in an echinococcus cyst. I will make a definite diagnosis of echinococcus disease of the liver, probably with a considerable amount of damage in the liver and possibly with some secondary disease in the liver, and a diagnosis of latent syphilis, which is not important in this case.

DR. HOLMES: I do not want to mislead you; such an appearance usually means a lump below the liver, but it does not have to.

DR. J. H. MEANS: Is Dr. Richardson explaining the ascites on a tuberculous basis?

DR. RICHARDSON: No, I wonder if he may not have had the same disease then as now.

DR. MEANS: Of the diseases that would cause such areas of calcification, would tuberculosis be the most common?

DR. MALLORY: Perhaps the most common, yes.

DR. MEANS: The man probably has had tuberculosis.

DR. RICHARDSON: I do not see what the evidence is. There is no evidence in this record except that the hospital said he had it. Whether he had it or not, I do not know.

DR. MEANS: Tuberculosis of the liver is a rare lesion, but it does occur, and there may be tuberculosis in the spleen.

DR. MALLORY: There is also a very queer disease that is usually described as tuberculosis of the spleen, but it probably is not. It is characterized by lesions that look like masses of miliary tubercles. It is limited to the spleen, with very minimal symptoms of any sort. Whether it is sarcoid or not, I do not know. It has always been described as tuberculosis.

DR. MEANS: Miliary tuberculosis can produce a nodular liver because I came to grief in St. Louis on a case a year or so ago. The story was that of suppurative hepatitis; with jaundice, chills, fever, and so forth, but it turned out to be miliary tuberculosis with extensive involvement all through the liver, which had in fact made it more or less nodular.

DR. MALLORY: The tubercles must have been bigger than miliary, however.

DR. RICHARDSON: I meant to mention giant follicular lymphoma. I think that is very much more common in women, and this case has run too rapid a course. I should think that, if there was any question of diagnosis and since he did have large axillary glands, they should have been biopsied before operation was performed.

DR. MALLORY: Dr. Churchill was asked to see the patient. He was somewhat reluctant to commit himself to a diagnosis, but he thought that the patient ought to be operated upon, which he proceeded to do.

DR. EDWARD D. CHURCHILL: I think we recorded a preoperative diagnosis of echinococcus cyst. We had certain misgivings, as Dr. Richardson has, but we were misled by the calcification, exactly as Dr. Richardson has been. At operation an enormous spleen was exposed, which had been felt after the abdominal paracentesis and had been recognized pretty definitely as spleen. Dr. Bock's preoperative note was, "This picture suggests Banti's syndrome more than anything else—pathology of splenic vein, now with failure of collateral circulation. He has not had hemorrhage as yet but may bleed at any time. I think he rates exploration to determine the nature of the lesion if this is possible. ? Omentopexy."

The liver was small but normal in appearance. The spleen was huge, and an effort was made to dissect into the hilum with the idea of ligating the splenic artery since the man was in too poor a condition to warrant splenectomy. However, in attempting to reach the splenic artery hemorrhage was encountered from vascular adhesions and our hand was forced to remove the spleen. The operation was even more difficult than the diagnostic problems Dr. Richardson faced in the discussion. The man died on the fifth day. Hemorrhage was well controlled, and the loss of blood compensated for by several transfusions. I do not recall what we assigned as the chief cause of death, except general weakness and too extensive operation.

CLINICAL DIAGNOSES

Echinococcus cyst.
Banti's disease.

DR. WYMAN RICHARDSON'S DIAGNOSES

Echinococcus disease.
Latent syphilis.

ANATOMIC DIAGNOSES

Banti's disease.
Occlusion of the splenic artery with calcification.
Esophageal varices.
Atrophy of left lobe of liver.
Ascites.
Pulmonary atelectasis, congestion and edema.
Pleuritis, chronic fibrous, bilateral.

Pathological Discussion

Dr. Mallory: The spleen which Dr. Churchill resected was enlarged and showed a very marked thickening of its capsule and diffuse fibrosis throughout the organ, with a great many little hemorrhagic periarterial foci, which are characteristic of so-called Banti's disease. At the postmortem examination the vessels in the region of the splenic pedicle were very carefully dissected out, mostly by Dr. Churchill himself. The splenic vein, which he had ligated, was dilated through its course along the body of the pancreas, but at the point where it should have entered the portal vein it was separated from it by a thin membranous septum in which were three or four very minute perforations. We thought that was indication of an old thrombus in this region. The portal vein was somewhat small, smaller than the superior mesenteric. The right lobe of the liver was normal in size, but the left lobe was extremely small, weighing only 80 gm., a very common finding in these cases of so-called Banti's disease. As one would expect under these circumstances, a very widespread collateral circulation had been built up which was difficult to trace out. There were a number of big vascular channels in the body of the pancreas, and a vein of considerable size running along its lower border over to a plexus of dilated vessels in the perirenal fat. A communication of considerable size was demonstrated between these vessels and the eleventh intercostal vein. This in turn ran up to the azygos system. The azygos veins themselves were larger than normal in size, and there were esophageal varices. There also was a very obvious dilatation of the hemorrhoidal plexus, including both superior and inferior hemorrhoidal veins; so some collateral circulation was obtained there. The type of collateral circulation that we saw in a similar case recently,—one which you may remember Dr. Allen had operated on, where the inferior phrenic anastomosed with the left renal,—was not made out. In this case, if such a connection was present, it was a very small one and not a major factor in the collateral circulation.

No one diagnosis could have tied up all that this man presented, and the point which obviously was bothering Dr. Richardson particularly was the condition of the kidneys. They showed a focal glomerulonephritis of the type where individual glomeruli or sharply limited parts of glomeruli showed typical endothelial proliferation,—the usual microscopic indication of a progressive glomerulonephritis,—whereas other glomeruli were entirely negative. There was hemorrhage into many of Bowman's capsules, and clusters of tubules were filled with blood. The findings adequately explain the albuminuria and the hematuria. It is a type of renal disease of which we know very little. We see one form of it associated with acute endocarditis, but it is known that the disease occasionally occurs in patients with no endocarditis, as was the case here. The theory has been advanced that cases of "benign hemorrhagic nephritis" that run over years without progression and without development of renal failure may be of this type.

Dr. Holmes: What caused the calcified shadow?

Dr. Mallory: That was the organized thrombus within the splenic vein with possibly a little additional calcification in the capsule of the spleen itself.

Dr. Holmes: The character of it looks like a blood vessel.

Dr. Means: Why did he get over the ascites that he had 20 years ago?

Dr. Mallory: I think the attack 20 years ago was the primary splenic thrombosis.

Dr. Means: And he worked out an adjustment to that?

Dr. Mallory: Yes, the collateral circulation over a long period was adequate but eventually broke down.

Dr. Holmes: Was there anything on the upper surface of the liver to account for the irregular diaphragm?

Dr. Mallory: Absolutely nothing. There were dense pleural adhesions, however.

A Physician: Was there any cirrhosis of the liver?

Dr. Mallory: No, although, as I say, the left lobe was rather strikingly small as compared with the right, suggesting that the original thrombosis may have extended up into the left branch of the portal vein. That has very frequently been noticed in these cases.

Dr. Holmes: Was that blood vessel along the border of the left rib large enough to have shown any erosion of the rib?

Dr. Eugene R. Sullivan: The rib did not show erosion. The point was brought out at the time of autopsy by Dr. Churchill in view of the findings in coarctation. It was a very large vein and completely filled the space between the eleventh and twelfth ribs.

Dr. Mallory: I think it is unlikely that a dilated vein ever would erode a bone. One of the oldest and most reliable principles of pathology is that pulsating tumors easily erode bones; nonpulsating ones rarely do.

CASE 23252

Presentation of Case

A 52-year-old Irish railroad man was admitted complaining of headache.

Two years before entry the patient entered a sanatorium following gross hemoptysis, the de-

tails concerning which were not recorded. He remained at the sanatorium until his admission to this hospital and was found to have right-sided bronchiectasis. Tuberculosis was suspected but never proved. During this period he suffered from frequent sharp pain in the right chest, cough productive of mucopurulent sputum, palpitation, and dyspnea on exertion. There was no hemoptysis. Ten days prior to admission he developed profound weakness and severe headache. In addition there were backache, stiff neck and blurred vision. There were no chills, fever, nausea or vomiting. During the succeeding 10 days the symptoms continued unchanged. The headache was localized in the left temporal region and was variously sharp and throbbing in character. The patient became drowsy and somewhat confused. Two days before admission here he entered another hospital. Examination at the same hospital showed him to be emaciated. He lay perfectly still, cried out frequently with pain, and was distinctly averse to being moved. Speech was slow, and there was definite mental cloudiness. There was lateral nystagmus, but the pupils reacted normally to light. Examination of the fundi exhibited congested venules and moderately choked disks with blurring of the medial margins. The face appeared flatter on the left side, but the tongue protruded in the midline. Deep reflexes were uniformly hyperactive, and there was a positive Hoffman sign on the right side. Neither the Babinski nor the Gordon sign could be elicited. Abdominal reflexes were absent.

The patient had rheumatic fever at the age of 32. Six years before entry, after a series of upper respiratory infections, he was informed that he had tuberculosis. He remained in a sanatorium for 10 months at that time and was perfectly well until the onset of his present illness. For 2 years he had been known to have a mild diabetes mellitus.

Physical examination at the Massachusetts General Hospital showed an emaciated man, who looked considerably older than 52 years. There was marked clubbing of the fingers and toes. The patient coughed frequently and expectorated foul, purulent sputum. The pupils were equal and reacted promptly to light. There was no nystagmus. Examination of the fundi was unsatisfactory, but the optic disks appeared to be blurred. The neck was held fairly rigid, and there was evidence of increased muscle irritability. There was dulness of the entire right chest with hyperresonance on the left. Breath sounds on the right side were distant in character, but no other physical findings were recorded. The heart was displaced toward the right but was otherwise negative. The blood pressure was 135/70. Deep reflexes were symmetrically hyperactive throughout. There was no Babinski or Kernig sign. The abdominal reflexes were normal.

The temperature was 99.6°F., the pulse 80. The respirations were 20.

Examination of the urine showed a specific gravity of 1.030. There was no albumin, but a test with Benedict's reagent showed a brownish orange precipitate. The sediment contained an occasional white blood cell and granular cast. The blood showed a red cell count of 4,600,000, with a hemoglobin of 90 per cent. The white cell count was 18,900, 92 per cent polymorphonuclears. Examination of the sputum showed no tubercle bacilli. A lumbar puncture produced cloudy fluid with an initial pressure of 170 mm. of water. The fluid contained 7,000 white blood cells, of which 72 per cent were polymorphonuclears. There were no red blood cells. The total protein was 800 mg. per cent and the sugar 15 mg. per cent. Smears contained no microorganisms.

The patient's temperature remained comparatively low, and never rose above 100°F. He subsided into a restless stupor from which he was roused with difficulty. On the day after entry it was apparent that the patient was unable to see large objects with the left eye. He became very irritable during the examination, however, and the findings were not altogether conclusive. His condition became rapidly worse, rales appeared in the left chest, and he died on the third hospital day.

Differential Diagnosis

Dr. Milton H. Clifford: We have a patient coming into the hospital with pulmonary pathology and a recently started central nervous disease.

The story of rheumatic fever at the age of 32 brings fleetingly across one's mind the possibility that he might have other diseases connected with his rheumatic fever, even such a rare thing as subacute bacterial endocarditis, with the first signs being those of a meningitis.

"Six years before entry, after a series of upper respiratory infections, he was informed that he had tuberculosis." The pulmonary pathology, then, is of at least 6 years' duration.

The lumbar puncture fluid indicates some type of purulent meningitis.

We have a patient of 52, looking older than his years, with lesions in two different places. He has a pulmonary lesion of at least 6 years' duration, and signs of trouble in the central nervous system of 10 days' duration. As to the pulmonary pathology, the lesion is in the lower half of the chest. According to the Trudeau school, anything in the lower half of the chest is not tuberculosis unless proved otherwise; anything in the upper half is tuberculosis unless proved otherwise. That dictum helps little in the individual case. No tubercle bacilli were

found, although they were presumably looked for frequently. The sputum was definitely foul and purulent. At his entry here, there was irritation in the lower left side of the chest, and presumably the heart was pulled over to the right side, possibly on an atelectatic basis or possibly because of cavitation with expulsion of content at the time. Thus, as to the pulmonary pathology, we are left with the possibility of multiple small abscesses, as in a bronchiectasis, or, in addition, of a large abscess.

Let us consider whether the central nervous system disease is secondary or primary to the pulmonary pathology. If the patient had developed a meningococcus meningitis, one would certainly expect an onset with more fever, possibly a chill, and certainly a more febrile course. Again, no meningococci were found in the spinal fluid. On the law of chances, one does not want to postulate two diseases. Pulmonary abscesses frequently may metastasize to the brain. If he had chronic bronchiectasis of long duration, the reaction of the body to the organism causing it might have been of sufficient degree so that one could explain a lack of any great fever on that basis. If we consider the apparent meningitis as secondary to pulmonary abscesses, could it be a brain abscess with so-called meningitis sympathica—in other words, meningitis without bacteria, secondary to the reaction caused by the brain abscess? One thing very much against this is that the sugar in the cerebrospinal fluid was 15 mg., very distinctly low. Two factors may, however, influence this finding. First, he was known to have had a mild diabetes. We do not know what his blood sugar level was. We do not know how much of a diabetes he had, but, if the blood sugar was elevated, the cerebrospinal fluid sugar would be correspondingly higher. Therefore, we might presume that the figure of 15 mg. is much lower in this person than it would be in an individual in whom we knew that the blood sugar was normal. Secondly, cerebrospinal sugar can be lowered by the presence of pus, but bacteria are the most important factors in lowering the cerebrospinal sugar, according to work done several years ago by Dr. Frank Fremont-Smith. Beyond all this we have a purulent meningitis, suggested by a high white count, and an acute meningitis, suggested by the high percentage of polymorphonuclears. The fact that no organisms were found does not mean that there were none there. There was only one lumbar puncture, and the organisms may not have been found though present. If there were tubercle bacilli, one would expect an increase of lymphocytes rather than of polymorphonuclears. So one may presuppose that the purulent meningitis was secondary to the same organism that was causing the pulmonary pathology. Could that possibly be a yeast? Certainly the pulmonary pathology, though over so many years' duration, could fall in with streptothrix or actinomycosis, which may never have been found in the sputum, but certainly these ought to be there if one looked for them. Again, with a yeast infection one would expect more lymphocytes in the cerebrospinal fluid.

My opinion is that he had bronchiectasis and a brain abscess with secondary purulent meningitis, due to an unknown organism. As to the location of the brain abscess, I do not think that that can be made on the evidence at hand. It is interesting that at one time he was said to have had no abdominal reflexes, and at another time to have had them. He had no Kernig sign and his disks were questionably choked, which might happen fairly early in the development of an abscess.

Clinical Diagnoses

Suppurative bronchiectasis.
Meningitis.

Dr. Milton H. Clifford's Diagnoses

Bronchiectasis.
Brain abscess.
Purulent meningitis, secondary to ruptured brain abscess.

Anatomic Diagnoses

Bronchiectasis, suppurative; marked, right lower, middle and upper lobes; moderate, left lower lobe.
Brain abscess, left occipital lobe.
Meningitis, acute fibrinopurulent.
Ventriculitis, acute purulent.
Bronchopneumonia, left lower lobe.
Pulmonary congestion, bilateral.
Amyloidosis of the spleen.
Arteriosclerosis, moderate aortic and coronary.
Pleuritis, chronic fibrous, bilateral.

Pathological Discussion

Dr. Tracy B. Mallory: The postmortem showed a very extensive bronchiectasis which included all three lobes of the right lung, the upper as well as the middle and the lower, and the base of the left lung. The lesion seemed perfectly typical of bronchiectasis in that it consisted of multiple cylindrical sacs, each of them connected with a bronchus and each of them, so far as we could make out, lined with epithelium. The process was not the destructive type of lesion that one sees in a lung abscess. This type of pulmonary suppuration is less apt to give rise to metastatic foci of infection than the frank lung abscess.

Another finding in the body was one that one could merely guess at—nothing in the history suggested it. He had a very marked amy-

loid disease of the spleen, undoubtedly on the basis of chronic suppuration. The brain findings were interesting, and Dr. Kubik will tell us about them.

Dr. Charles S. Kubik: This patient, as Dr. Clifford pointed out, had what seemed to be a very definite, bacterial meningitis, with not only low sugar, but also low chlorides. Organisms were not found in smears or cultures from two or three samples of the spinal fluid. At autopsy there was an abscess in the left occipital lobe. This had burrowed through into the lateral ventricle, and there seemed to be a partly walled-off collection of pus in the ventricle, with, however, purulent exudate extending all along the floor of the lateral ventricle down into the third ventricle, aqueduct and fourth ventricle. There was a basilar meningitis, obviously resulting from the injection in the ventricles. We found no organisms in the smears of the arachnoid exudate. The abscess contained gram-negative, anaerobic bacilli. No growth was obtained from the ordinary cultures. We have had one or two other metastatic brain abscesses in which organisms were found in smears but were not obtained from cultures made in the routine way. It seems likely that these also were anaerobic organisms.

A Physician: How frequent a terminal event is brain abscess in bronchiectasis?

Dr. Richard H. Sweet: I was just remarking to Dr. White that it is fairly common after any suppurative process of the lung. I think that one does not see it so often after bronchiectasis as after lung abscess.

Dr. Helen S. Pittman: We discussed that in the Thoracic Clinic this week. Someone said that approximately 8 to 10 per cent of individuals dying with associated bronchiectasis had metastatic brain abscess.

Dr. Mallory: That is a higher incidence than I had imagined. I thought possibly it would be about 2 per cent.

Dr. James C. White: We had a man last week who came in with right hemiplegia, clubbed fingers and bronchiectasis. We thought that he had a lesion suggesting a brain abscess, and we obtained a great deal of pus from a trephine opening. What he had was not an abscess, but a tremendous subdural collection of pus. He may, on sectioning of the brain, show abscesses, too. He did not have meningitis.

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A DANGEROUS DRUG

OUR esteemed contemporary, the *New York Times*, in an issue of recent date, has made public a special wireless despatch from Berlin announcing the value of bicarbonate of soda in the relief of fatigue and the abolition of exhaustion. Professor Helmut Dennig, director of the fourth medical university-clinic of the Robert Koch Hospital in that city, indicates that this valuable preparation, so commonly found on local drugstore shelves, increases the body's alkali content, thus enabling it the more easily to rid itself of acids, especially lactic acid, which is one of the principal causes of exhaustion.

To be effective, according to Professor Dennig, alkalization must be produced suddenly and must not last longer than two to four days. Experimentally, a runner, under the influence of bicarbonate of soda was able to run full tilt for 42 minutes instead of 20; a bicycle racer was able to maintain a sprint for 15.9 instead of 10.9 minutes.

Bicarbonate of soda, in our own land of speed and pressure, has enjoyed a considerable vogue for a number of years, principally in the relief of symptoms caused by pylorospasm and hyperacidity, components of that same life of speed and pressure. Our local nimble-witted scientists have also for some time recognized its value in the prevention of fatigue, applying that knowledge to the salvation of overworked tennis champions, attenuated football players and even industrial workers, when the latter are not engaged in the modern game of sitting out the sheriff.

We are, however, merely toying with this drug, so long a simple household remedy for our overworked or intolerant gastric machinery, and even now only an aid in the interests of good, clean sport. It has remained for the inexorable efficiency of the Reich to weld it into an engine of destruction, for with this spectacular report comes a sinister suggestion that bicarbonate of soda, mathematically and precisely rationed out, will, in time of need, turn the Reich army into an inexhaustible and irresistible force.

So does modern man, with demoniacal ingenuity, conjure up Frankensteinian monsters that must eventually crush him!

KIPLING'S AUTOBIOGRAPHY

APART from the broad humanity shown in Kipling's autobiography, "Something of Myself for My Friends Known and Unknown," there is much of particular interest to physicians. The account of his early nervous breakdown and partial blindness, which were due to repeated beatings and atrocious care in what he calls his "house of desolation" in Southsea near Portsmouth, where he was left by his parents when they were in India, is a study in psychology not to be overlooked. His life as a child of seven or eight, he writes, "was calculated torture—religious as well as scientific. Yet it made me give attention to the lies I soon found it necessary to tell: and this, I presume, is the foundation of literary effort." When his mother returned and first came up to his room to kiss him good-night, he flung up his arms

to guard off the cuff that he had been trained to expect. Kipling thinks that his life, bad as it was in those early years, was not "an unsuitable preparation for my future, in that it demanded constant wariness, the habit of observation, and attendance on moods and tempers; the noting of discrepancies between speech and action; a certain reserve of demeanour; and automatic suspicion of sudden favours." There is much thought for pediatricians and child psychologists in Kipling's words.

A second incident relates to a much later period in life. Kipling came to Vermont in 1892 and remained there four years. In the stillness and suspense of the winter he wrote the "Jungle Books" and "Captains Courageous." In writing the latter he was greatly indebted to Dr. Conland, "the best friend I made in New England." Conland, a country doctor, who served as the family physician and obstetrician, had formerly sailed on the cod-fishing fleet out of Gloucester. "One thing leading to another, as happens in this world, I embarked on a little book which was called 'Captains Courageous.' My part was the writing; his the details. This book took us (he rejoicing to escape from the dread respectability of our little town) to the shore-front, and the old T-wharf of Boston Harbour, and to queer meals in sailors' eating-houses, where he renewed his youth among ex-shipmates or their kin. We assisted hospitable tug-masters to help haul three- and four-stick schooners of Pocahontas coal all round the harbour; we boarded every craft that looked as if she might be useful, and we delighted ourselves to the limit of delight. Charts we got—old and new—and the crude implements of navigation such as they used off the Banks, and a battered boat-compass, still a treasure with me. (Also, by pure luck, I had sight of the first sickening uprush and vomit of iridescent coal-dusted water into the hold of a ship, a crippled iron hulk, sinking at her moorings.) And Conland took large cod and the appropriate knives with which they are prepared for the hold, and demonstrated anatomically and surgically so that I could make no mistake about treating them in print. Old tales, too, he dug up, and the lists of dead and gone schooners whom he had loved, and I revelled in profligate abundance of detail—not necessarily for publication but for the joy of it. And he sent me —may he be forgiven!—out on a pollock-fisher, which is ten times fouler than any cod-schooner, and I was immortally sick, even though they tried to revive me with a fragment of unfresh pollock.

"As though this were not enough, when, at the end of my tale, I desired that some of my characters should pass from San Francisco to New York in record time, and wrote to a railway magnate of my acquaintance asking what he himself would do, that most excellent man sent a fully worked-out time-table, with watering halts, changes of engine, mileage, track conditions and climates, so that a corpse could not have gone wrong in the schedule. My characters arrived triumphantly; and, then, a real live railway magnate was so moved after reading the book that he called out his engines and called out his men, hitched up his own private car, and set himself to beat *my* time on paper over the identical route, and succeeded. Yet the book was not all reporterage. I wanted to see if I could catch and hold something of a rather beautiful localised American atmosphere that was already beginning to fade. Thanks to Conland I came near this."

Finally, there is a pleasant tribute to the late Sir John Bland-Sutton and a story illustrating John Hunter's dictum, "Don't think—try." The close friendship between Kipling and Bland-Sutton has recently been commented upon in an editorial published in this *Journal* (**216**: 396 [Mar. 4] 1937).

PRONTYLIN AND PRONTOSIL

In the April 22 issue of the *Journal* a letter from a Bradford correspondent was published, which expressed, we believe, the proper attitude in regard to the acceptance of new drugs as therapeutic agents. In this issue there appears a letter that criticizes the former letter and expresses the *opinion* that any skepticism concerning the value of prontylin and prontosil should not exist—an attitude that the *Journal* has tried to discourage.

Every new remedy must be thoroughly tested and adequately reported by various groups of competent investigators before it can be given official approval. Upon such procedures the Council on Pharmacy and Chemistry of the American Medical Association insists. Reports from one clinic and single case reports do not, as a rule, suffice.

No physician in his right mind would ever attempt to discourage the use of a drug that offered the possibility of successfully combating infections due to the hemolytic streptococcus. Furthermore, one must acknowledge that published reports from one of the best medical clinics in this country indicate that prontylin and prontosil are almost unbelievably valuable in the treatment not only of hemolytic streptococcus infections but also of those caused by certain gram-negative diplococci, such as the meningococcus and even the gonococcus.

But, let us be absolutely sure of our facts before accepting these new drugs as panaceas. Let us not forget that certain untoward effects, which, because of the chemical composition of the drugs were not entirely unexpected, have been noted following their administration, that some strains of hemolytic streptococci are relatively nonpathogenic for man, that mortality rates from meningococcic meningitis vary tremendously in different localities, in the same locality at different times, and in different age groups, and that we have available antimeningococcic serums that are usually effective when properly administered to suitable cases.

Furthermore, if, as we hope, these successful, reported results are confirmed and safe dosages determined, let us not forget that an accurate bacteriologic diagnosis from a culture should be obtained, in most instances, before the drugs are given, and that other methods of treatment may be indicated either with or without the use of these drugs. Failure to heed the last two reminders will lead only to many disastrous results and will place in bad repute drugs that show every indication of being most valuable additions to the physician's armamentarium.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

HOWE, C. W. M.D. Tufts College Medical School, 1936. Intern at the Rhode Island Hospital. Address: Rhode Island Hospital, Providence, R. I.

BELL, D. W. J. M.D. McGill University Faculty of Medicine, 1936. Intern at the Rhode Island Hospital. Address: Rhode Island Hospital, Providence, R. I. Their subject is "Comparative Results in Protamine-Zinc and Unmodified Insulin Therapy." Page 1095.

SEVER, JAMES WARREN. M.D. Harvard Medical School, 1901. F.A.C.S. Assistant professor of orthopedic surgery, Harvard Medical School. Visiting orthopedic surgeon, Children's Hospital, Boston. Orthopedic surgeon, Cambridge, Waltham and Quincy hospitals. Associate surgeon, Boston City Hospital. Address: 321 Dartmouth Street, Boston. His subject is "Fracture of the Head of the Humerus. Treatment and Results." Page 1100.

RUSHMORE, STEPHEN. M.D. Johns Hopkins University School of Medicine, 1902. F.A.C.S. Secretary, Massachusetts Board of Registration in Medicine. Chairman, Approving Authority for Colleges and Medical Schools. Address: 520 Commonwealth Avenue, Boston. His subject is "Medical Education Now and Then." Page 1108.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

M. FLETCHER EADES, M.D.
19 Bay State Road
Boston, Mass.

CASE HISTORIES

No. 25. TUBAL ABORTION

Mrs. V. B., a 25-year-old white woman, who had been married 4 years, entered the hospital on December 8, 1930, complaining of vaginal bleeding requiring three napkins a day. This had persisted for 5 weeks. The flowing had started 2 days before an expected menstruation on October 31. It was generally dark and muddy looking, and there were no clots. For the week preceding admission there was dull pain in the left side. This had gradually become more intense and persistent, so that sleep was impossible. During the admission examination, there was added to this pain a very sharp knifelike pain which made her feel faint. She had suffered nausea for 3 weeks before admission.

This patient's family history was not remarkable, and she had always been well. She had had two children, both of whom were living. The youngest was 15 months old. There had been no miscarriages. Her menstruation began at 13, was of the 28-day type, the flow lasting from 4 to 5 days and requiring three or four napkins per day. As has been said, her present illness began on the twenty-sixth day of the cycle.

*A series of selected case histories by members of the Section will be published weekly.
Comments and questions by subscribers are solicited and will be discussed by members of the Section.

She was a healthy looking young woman of normal stature and with normal distribution of hair and fat. Her lungs and heart were normal, as was her abdomen, except for tenderness and spasm in the left lower quadrant. Her systolic blood pressure was 100; the diastolic, 60. Her hemoglobin was 80 per cent by Tallqvist's scale. The sedimentation rate was over 3 hours. The urine was normal except for the slightest possible trace of albumin. The temperature on admission was 98°F., the pulse was 70, and the respirations, 20. The patient felt and gave the appearance of being quite "sick." Vaginal examination revealed a soft, tender mass about 7.5 centimeters in diameter in the left vault. The cervix was soft and patulous; the uterus was somewhat enlarged. The diagnosis was ectopic pregnancy, and arrangements for a laparotomy were made.

Examination under anesthesia revealed nothing new. The cervix was easily dilated. The uterine cavity was found to be smooth, and the curettings appeared normal. On celiotomy, the intestines and pelvic organs were found to be covered with dark and bright red blood. The uterus was a little large and soft. The fimbriated end of the left tube was enlarged and seemed to be bleeding from the entire surface. Attached to the posterior leaf of the left broad ligament was a dark, bloody mass about 4 centimeters in diameter which was easily separated. It was found to be a blood clot surrounding a fetus about 1.2 centimeters long. The outer swollen third of the left tube was removed. A routine appendectomy was done, and an Olshausen suspension. Convalescence was quite uneventful, and the patient was discharged on the twenty-second day.

Comment. One should note this not uncommon incidence of an ectopic pregnancy with no history of amenorrhea. Beyond this, all was characteristic of ectopic pregnancy: irregular bleeding, pelvic pain, an attack of faintness, mild anemia, malaise and a pelvic mass.

Although many good surgeons make a practice of removing the appendix in many cases of ruptured extrauterine pregnancy or tubal abortion, the wisdom of this procedure is open to question. In mild cases, with very little bleeding, the added risk is probably slight, but if a quantity of fluid blood and clots are present the danger of infection is definitely increased by appendectomy.

MISCELLANY

IMPORTANT AMINO ACIDS IN WHEAT FLOURS

White patent flour is about as good a source of the important amino acids that the human body has to have for life and growth as whole-wheat flour, according to investigations by Dr. Frank A. Csonka of the Bureau of Chemistry and Soils, U. S. Department of Agriculture.

Two important amino acids, cystine and tryptophane, were higher in patent flour, while tryosine and the dibasic amino acids were higher in whole-wheat flour. Naturally, there are other factors in addition to the amino acids, such as mineral content, vitamins, roughage and keeping quality, all of which are important and must be considered in estimating the relative value of patent and whole-wheat flour. But Dr. Csonka was not concerned with these. He was only trying to find out how white patent flour compares with whole-wheat flour in the "important" amino acids.

Milling both patent and whole-wheat flour from the same sample of wheat shows that the total quantity of important amino acids in the protein of patent flour differs only slightly from the total quantity in whole-wheat flour. Proteins are made up of amino acids which are necessary in building up the tissues of the body. Something like nine of the twenty-two or more different kinds of amino acids are essential to life and growth. Certain of these amino acids required by the body in building proteins and hormones have to be supplied through the diet, because the body cannot produce them.

The customary method of estimating the protein content of wheat flour is to multiply the nitrogen percentage in the flour by 5.7. This shows the difference between low and high protein flour, but gives no information as to the quality or food value of the protein in the flour. This is important because the food value of a protein depends upon whether it contains enough of these "indispensable" amino acids.

Results of the investigation show that the amino acid content of wheat may differ a great deal in different varieties. Hard wheat is higher in certain of the important amino acids than soft wheat; and protein quality in wheat is better in varieties high in protein.

Of the three major parts of a grain of wheat,—bran, germ and endosperm,—bran and germ are higher than endosperm in protein, but the endosperm from which patent flour is made constitutes such a large percentage of the wheat grain that the total amount of amino acids in patent flour is practically the same as the total amount found in whole-wheat flour.—*U. S. Department of Agriculture.*

WHAT TO DO FOR THE HANDICAPPED CHILD*

Have you a handicapped child in your family? Are you satisfied with his progress at home and in school? Is he getting fun out of life and you with him? Perhaps there is something more that might be done to make him happier and more productive. Modern medicine now offers the means for correcting and discovering a good many disabling conditions, and modern education, its partner, stands ready to show the child and his parents how to turn discouragement into accomplishment.

*A Health Message Broadcast given by Lendon Snedeker, M.D., on Thursday, May 6, 1937, and sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

The handicapped child is not always crippled in body. Though able to get about the world, he may be thwarted because of the loss of his sight, his hearing or his speech. He may not possess the blessing of a vigorous and competent mind and find it hard to make his way beside his more alert and intelligent playmates. He may be leading a lonely discouraging existence at home, confined to bed with heart trouble, tuberculosis or some other chronic disease.

The crippled child appeals strongly to all of us, and we find that he is usually provided for ahead of other handicapped children. There are many benevolent and charitable institutions ready to meet his needs. Massachusetts maintains through the State Department of Public Welfare a model hospital school at Canton. In places such as this the more serious cases can be given the attention necessary for the best possible result. This often means a series of delicate operations taking months or years to complete. Braces and splints need constant adjustment, and special exercises must be carried out. Schooling goes hand in hand with medical care, and the child learns from his friends about him how to be happy and self-reliant.

Children who are less severely crippled and are not receiving active treatment are better off at home and attending regular school. They need special teachers, of course, and must be driven to and from their homes. It is important for them to learn how to be self-supporting, and proper training along these lines will more than repay the community for the extra expense. "The education of the crippled child is not philanthropy — it is enlightened self-interest."

Is your child deaf or hard-of-hearing? A child does not need to be totally deaf before his problem becomes important. Slight loss of hearing may be responsible for inattention, poor school work and much discontent. Some children are deaf to certain tones and may hear only a part of the noise which goes on about them. Imagine how well you would have done in school with the same handicap. Would you have learned to speak and read correctly and would not you have rebelled when people said you were lazy or stupid?

Slight deafness is not easily discovered without the use of an electrical instrument called an audiometer. This permits the testing of large groups of children and is being employed more and more in our Massachusetts schools. Audiometer tests should be done soon after any child enters school and should be repeated at regular intervals. If poor hearing is discovered, it is the duty of the parents to see that their child receives proper medical attention. Then the school should step in. It may help the child by placing him at the front of the classroom near the teacher, and, if necessary, by providing instruction in lip reading so that his eyes may be able to help his ears. For some types of deafness, mechanical hearing aids may be of great use. These are continually being improved and made less conspicuous.

In Massachusetts every deaf child is required by law to attend a special school, and lip-reading classes have been established in certain cities. General information may be secured from the Boston Guild for the Hard of Hearing, 339 Commonwealth Avenue, Boston.

More appealing and more dependent are the blind children, most of whom must live and get their schooling in special institutions. Here they learn to read and write Braille, to get about as confidently as they can and to do things which will make them more nearly self-supporting in the future. Aside from the totally blind, however, are a large number of children whose sight is partly lost. Many of these will be still further handicapped unless their condition is discovered early in life and proper steps taken to prevent eyestrain. The first action to prevent increasing loss of sight in these children was taken in 1906 when our General Court provided for annual vision tests in the schools. Now those who are found defective are referred to eye doctors or clinics for treatment and are taught in "sight-saving" classes. Here books are used which are printed in large type, and lessons are done on the typewriter using the touch system. Eyestrain is done away with by cutting out the light glare from windows or blackboards, and attention is given to posture and to proper lighting of the school rooms. With the help of these measures the eyes are spared a good deal of unnecessary work.

At the present time it is thought by the eye doctors in the State that there is a real need for continuing and extending these yearly eye tests. It has been found that a good many defects are missed unless drops are used in the eyes before the examination. More sight-saving classes are needed, as well as more teachers with the proper training to do this work. Information can be secured from the Division of the Blind in the State Department of Education, whose offices are at 110 Tremont Street, Boston.

Perhaps the mentally retarded child is our most difficult problem. Heredity, accidents of birth or diseases of the nervous system, all may prevent his becoming the mental equal of the other children in his family. If the mother is observant, she will soon realize that this new child of hers is not coming along as he should. He will be slow to speak and to walk. He will not be particularly interested in his toys. Later on he will be unable to make progress in school because of his slowness and inattention.

Since 1914 it has been provided by law in this State that any child who has not been promoted for 3 years should be given a mental examination, and since 1931 this opportunity has been extended to many children less than 3 years behind. When these tests have shown diminished intelligence, the child has been put in a special class, where lessons are suited to his ability. It is often found that bad deportment and poor marks are due to low intelligence.

Many backward children are unable to go to school. Their mental growth stops before this is possible. If they are only children, they may continue to be cared for at home, but much hardship may result if there are normal brothers and sisters in the family. The backward child requires more than the usual amount of care; he may be destructive about the house, and his peculiarities tend to make him and his family subjects for ridicule by other children. It is not fair or wise to deprive the normal children of attention and companionship. The solution lies in placing the handicapped member of the family in an institution where he can live in quieter surroundings with others who are backward. He will be happier, safer and better educated if this is done.

Another distressing handicap is the inability to speak properly. This may be due to abnormal development, as in the case of harelip and cleft palate, or to disease of the nervous system affecting the muscles of the tongue and lips. It may be related to defects in hearing or intelligence, but more often it is due to poor training or to emotional difficulties. Any child who stammers, stutters or is slow to talk should be examined to find out the reason for his trouble. It will then be possible to determine just what type of training is necessary to bring about the greatest possible improvement. Most children can be treated at school, but a few will need special medical attention. If parents were more careful of their own speech, many of these difficulties would not arise.

One of a mother's most difficult problems is the proper handling of a child restricted in his activities because of chronic illness and yet well enough to justify attempts to keep him up in his schooling. He may be forced to stay in bed because of tuberculosis or heart disease. He may need extra rest because he is underweight or nervous. All of these conditions interfere with his education and require absence from school for varying periods. Furthermore, he is apt to suffer because his handicap is invisible, and less allowance is made for it. Much can often be done in the way of reducing the amount of effort the child has to expend in getting to or from school. By taking lunch with him, he may save a walk of as much as a mile in the middle of the day, and the extra time can be used for rest. Sleeping on the ground floor may save unnecessary steps. Perhaps there is a kind neighbor who would be willing to drop him at school in the morning or perhaps the school bus is available. Many of these effort-saving expedients are possible with a little foresight.

Unless you can afford a private tutor, proper education at home is not so easily secured. Community effort can get around this difficulty, as has been demonstrated by the workers of one clinic in Boston that looks after a large number of children bedridden with heart disease. Volunteer workers visit their homes and teach them not only handicrafts but their lessons as well. All the children are enrolled in a club, and although widely separated, know about each other and their doings. Thus they are able to get the feeling of belonging to a group even though they are cut off from regular play and friends. Almost any community contains intelligent, interested people who will willingly give their time to help in these situations. Some communities have found that the traveling home-teacher opens the door of opportunity for any home-bound, physically handicapped child. It is even possible that a great many parents have not forgotten so much of their own schooling that they are helpless to aid.

Parents are frequently at a loss to know where to turn in their search for help. They naturally want to know the best time to start special training and how much to expect of it. The cost of braces, spectacles, hearing aids or other special appliances may seem impossibly high, and they may not know how to go about getting them. To answer these questions should be the job of the family doctor, although he often finds the demands on his time so great that it is hard to do justice to his young charge. This is particularly true in the country where opportunities are scattered. In the cities, with their greater number of organizations, there are usually to be found agencies taking a special interest in the various kinds of handicaps. The telephone may be all that is needed to find them. Large hospital clinics usually delegate these problems to the social service department. The Department of the Interior at Washington has published a bulletin called "Parents' Problems with Exceptional Children," which can be had for the writing. This lists the various agencies and state officials to whom applications can be made for the information wanted. It also makes suggestions as to what the mother can do at home herself.

Once a handicap is recognized it is important that training be started as soon as possible. This is because the child must be taught how to use his other senses better in order to make up for his lack in one. For example, the blind child needs to learn through touch and the deaf child through his eyes. This takes more time, and only someone with special training can show him how.

It is hard to see one's child put aside from regular schoolwork and delegated to a special class. Of course, it is an admission that he is not up to doing ordinary work. Unfortunately, children know only too well one another's weaknesses and are not too kind in pointing them out. All this must be balanced against the harm done to a child if he continues to do work for which he is not suited or which sacrifices his sight or other senses to the pride of his parents. No gift can make up for the loss of the opportunity to be a happy, self-supporting grownup.

CORRESPONDENCE

PRONTYLIN AND PRONTOSIL

Editor, *New England Journal of Medicine*,

I have read the editorials on prontylin and prontosil that have appeared in the *Journal* of Decem-

ber 31, 1936 and April 22, 1937, the case reports published March 18 and April 22, and the letter from the Bradford correspondent which appeared April 22. While your editorials were fair, I cannot say the same about the letter from Bradford.

Those who have treated *Streptococcus hemolyticus* infections know what terrible conditions they are and should and do welcome any means that will alleviate suffering, prolong life or reduce the death rate, and I believe that prontylin and prontosil have done all these things.

May I refer the skeptical to the article by Long and Bliss on "Para-Aminobenzenesulfonamide and Its Derivatives" in the February, 1937, issue of *Archives of Surgery* and the article by Schwentker, Clason, Morgan, Lindsay and Long on "The Use of Para-Amino-Benzene-Sulphonamide or Its Derivatives in the Treatment of Beta Haemolytic Streptococcal Meningitis," which appeared in the *Bulletin of the Johns Hopkins Hospital* for April, 1937, and also to the article by Anderson in the May 8 issue of the *Journal of the American Medical Association* on "Hemolytic Streptococcus Meningitis," in which the author reports "complete recovery following the use of prontosil and sulfanilamide."

Yours very truly,
G. Praino, M.D.

273 Broadway,
Boston, Mass.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago, Illinois.

Managing Editor, *New England Journal of Medicine*,

In addition to the articles enumerated in our letter of May 4 the following have been accepted:

Abbott Laboratories
- Ampoules Dextrose 50%, 10 cc.
- Ampoules Dextrose 50%, 100 cc.
- Digipoten Tablets 0.05 Gm. (¾ grain)
- Digipoten Tablets 0.1 Gm. (1½ grains)
- Neoarsphenamine with Metaphen—D.R.L.
- Ampoules Procaine Hydrochloride Solution 2%, 1 cc.

Bilhuber-Knoll Corporation
- Metrazol Ampules, 3 cc.

Calco Chemical Co., Inc.
- Sulfanilamide—Calco
  - Tablets Sulfanilamide—Calco, 5 grains

Campbell Products, Inc.
- Mercurin
  - Mercurin Suppositories

Hoffmann-LaRoche, Inc.
- Riboflavin Synthetic—Roche
  - Riboflavin—Roche Ampules, 2 cc.
- Syntropan
  - Ampuls Syntropan Solution, 0.01 Gm., 1 cc.
  - Tablets Syntropan, 0.05 Gm.

Lederle Laboratories, Inc.
- Sulfanilamide—Lederle
  - Tablets Sulfanilamide—Lederle, 5 grains

Merck & Co., Inc.
- Vinethene—Merck
- Sulfanilamide—Merck
  - Tablets Sulfanilamide, 5 grains

National Aniline & Chemical Co., Inc.
- Methylene Blue

Sharp & Dohme, Inc.
- Pollen Extracts—Mulford (Complete treatment package containing 2 cc. vial containing 100 pollen units per cubic centimeter and one 10 cc. vial containing 5000 pollen units per cubic centimeter)

Upsher Smith Co.
- Tincture Digitalis Upsher Smith
- Tablets Digitalis Upsher Smith ½ grain
- Tablets Digitalis Upsher Smith 1 grain
- Tablets Digitalis Upsher Smith 1½ grains
- Capsules Digitalis Upsher Smith ½ grain
- Capsules Digitalis Upsher Smith 1 grain
- Capsules Digitalis Upsher Smith 1½ grains

E. R. Squibb & Sons
- Sulfanilamide—Squibb
  - Tablets Sulfanilamide—Squibb, 5 grains

Winthrop Chemical Co., Inc.
- Pontocaine Hydrochloride—Winthrop
  - Pontocaine Hydrochloride Solution 1%
  - Pontocaine Hydrochloride Solution 2%

John Wyeth & Brother, Inc.
- Silver Picrate—Wyeth's
  - Silver Picrate Crystals
  - Silver Picrate Vaginal Suppositories
  - Compound Silver Picrate Powder

Yours sincerely,
Paul Nicholas Leech, *Secretary*,
Council on Pharmacy and Chemistry.

REPORTS OF MEETINGS

BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY

A meeting of the Boston Society of Psychiatry and Neurology was held on the evening of April 15 at the Boston Medical Library.

The first paper of the evening was on "Imagery and Its Relations to Schizophrenic Symptoms" by Dr. Louis H. Cohen. The first problem which Dr. Cohen studied in relation to this subject was whether a change occurs in the imagery of schizophrenics. Nineteen cases were studied quantitatively and controlled by 19 normal cases. He used test items in terms of visual, auditory, kinesthetic, tactile and temperature, olfactory and gustatory imagery. Normal persons tend to have more visual and auditory imagery than schizophrenics but the latter group leads in kinesthetic, tactile and temperature, and olfactory and gustatory imagery.

Dr. Cohen then studied the relation between the

specific type of preponderant imagery and the type of preponderant symptoms. He found that there was no relation between visual imagery preponderance and visual hallucinations, and this was also true in the case of passive auditory hallucinations, that is, for the type of hallucination to which the subject passively listens but to which he does not respond. In the tactile-temperature group, the schizophrenics had tactile hallucinations, somatic delusions and stupor. The same was true for the olfactory and gustatory group. There is a definite connection between the frequency of imagery and the symptoms.

The second paper of the evening was on "Electroencephalograms in Schizophrenia" by Dr. Hudson Hoagland. The frequency with which electric waves pass through the cortex of the brain can be measured and charted. The so-called alpha waves occur about ten times a second in normal people, and there are also much slower waves present under certain conditions. Dr. Hoagland studied these waves in schizophrenics receiving treatment with insulin shock. He found that the administration of insulin caused the alpha waves to become slower and caused the slow waves to become more numerous. These two changes are due, Dr. Hoagland believes, to changes in cell respiration. In line with his concept is the fact that thyroxine accelerates the alpha frequency.

Dr. Hoagland devised a method of measuring the larger waves by means of a "map measurer." With this instrument he traces on a meter of the record the outline of all waves slower than alpha waves, and notes the length of the line that has been traced; this is recorded on the map measurer. The excess length, that is, the length beyond 1 meter, he has called the "excess factor." The excess factor varies inversely with the blood sugar. The alpha frequency goes down after insulin administration and then increases as the blood sugar rises. High excess factors are observed in untreated schizophrenics. A patient with a severe form of the disorder, however, may have a perfectly normal excess factor. In a patient with a high excess factor, the factor tends to be reduced by insulin shock therapy; a remission occurs as this factor approaches normal. If the excess factor again rises the patient may have a relapse.

Dr. Gibbs, who has been studying epilepsy with Dr. Lennox at the Boston City Hospital, joined part of the discussion and said that he and his associate had been studying the effects of high and low blood sugar on epileptics. He stated that large, slow waves appear in many conditions where consciousness is disturbed. In cases of petit mal, the slow waves have a characteristic pattern, occurring at a frequency of 3 per second and alternating with faster waves. In 2 cases it was found that a high blood sugar abolished this abnormal activity and that a low blood sugar made it almost continuous. Dr. Davis, who has been doing some studies on schizophrenics at the McLean Hospital, reported that he has found that there is the same variation of the excess factors as Dr. Hoagland described. He believes that the slow waves represent an impairment of consciousness and that they are normal in sleeping persons. He quoted Walter as saying that these waves are also found in the areas of cortex lying around a cortical tumor.

Dr. Jasper said that he had used this method at the Bradley Home in Providence. All of his records on schizophrenics fell within normal limits, and he was able to demonstrate no large waves. Dr. Hoagland replied that the method has to be carefully controlled in order to obtain the results of which he spoke. In conclusion, he said that the patients with low excess factors are those who are well adjusted to their psychoses and are used to their environment.

Dr. Roy G. Hoskins spoke on "Oxygen Metabolism in Schizophrenia." Since many persons feel that schizophrenia is due to some constitutional factor, he has been studying a great many of these cases at the Worcester State Hospital with this in mind. He pointed out that changes in oxygen pressure are important in such things as mountain climbing, aviation and integration. The basal metabolic rates are about 10 per cent lower in schizophrenics than in normal individuals when done under carefully controlled conditions. Normal persons react to an addition of 2 per cent of carbon dioxide to the atmosphere, while in schizophrenics the addition of such a percentage of carbon dioxide does not increase respiration. Chemical studies show that the oxygen content of arterial blood is slightly below normal if the blood is taken without causing excitement of the patient. This upset of oxygen metabolism, which Dr. Hoskins believes to be present in schizophrenic patients, may be due to difficulties in assimilating or in transporting oxygen. It has been shown that the blood volume is less than normal, but this is probably due to reduced bodily nutrition which throws the usual calculations off. The circulation rate by the sodium cyanide method has been found to be only 80 per cent as fast as in normal persons under basal conditions. It has also been shown that schizophrenics probably use glutathione to help them get rid of the lactic acid in their systems. It is difficult to cause schizophrenics to react to thyroid or dinitrophenol in the usual manner by an increased basal metabolic rate, and such patients seem to lose specific dynamic reaction to proteins.

In the discussion which followed this paper, it was brought out that work has been performed showing that a lowered oxygen tension in the region of the cortical cells causes changes similar to those observed following acute asphyxia.

WILLIAM HARVEY SOCIETY

The William Harvey Society of the Tufts College Medical School held its monthly meeting in the auditorium of the Beth Israel Hospital, Friday evening, April 16. Dr. David Rapport, professor of physiology, presided.

The subject, "The Significance of Recent Studies

upon Anterior Pituitary and Related Glands," was discussed by Dr. James B. Collip, professor of biochemistry of McGill University Faculty of Medicine. Dr. Collip limited his paper to a presentation of facts rather than to an interpretation of their significance. Recent experimental findings have been so confusing that it is impossible to correlate both of these correctly at the present time. He believes that the diverse effects produced by the injection of anterior pituitary extracts into animals may not be due to the action of many different hormones. They are more logically explained by considering many of the physiologic phenomena as side effects of several basic hormones. The substances secreted by the gland may be made up of large protein molecules containing many active chemical groups. The activity of these groups could conceivably be controlled by the action of enzymes or other secretions. If such a theoretical assumption could be verified, the complexity of pituitary physiology would be greatly simplified.

The breakdown of protein molecules produced by extraction might liberate some and destroy others of these groups. Many of the unusual effects of laboratory extracts could be explained by the individual action of protein fragments. It is generally agreed that there are at least five separate and distinct hormones produced by the anterior pituitary gland. Experimental results disclosing new reactions which are not directly related to these five hormones are possibly due to the liberation of protein breakdown products. The effect of heat applied in the preparation of extracts offers supporting evidence to this theory. Variations in temperature and in hydrogen ion concentration will change the properties of the extracts. For example, prolactin boiled at pH 8 will still stimulate the crop gland of a pigeon, while the growth extract under the same conditions will lose its effect. By varying the hydrogen ion concentration and temperature, prolactin may be made to lose its properties while the growth extract remains active. It would seem that the method of preparation has a definite influence on the sensitivity of the product. Extracts may appear to be pure preparations but probably contain other inactivated hormonal properties. Recent experimental data suggest that the hormones controlling growth, the adrenal cortex and the mammae may be incorporated in a single large protein molecule. As an illustration, an extract supposedly having the sole property of producing growth may also stimulate the adrenal cortex if given in large doses. Until more conclusive evidence is available, however, five separate hormones must be considered, namely, growth-stimulating, adrenotropic, thyrotropic, gonadotropic and mammotropic hormones.

The growth hormone produces a symmetrical enlargement of the bones and has little effect on the soft tissues. It is not essential for the growth of the internal organs for, when one kidney is removed in a hypophysectomized animal, the other kidney hypertrophies rapidly. It influences the size of the body rather than the differentiation of the tissues and is not necessary for life. The healing of a wound with its fibroblastic proliferation is not dependent on it. It is true that the other pituitary hormones have some controlling influences on growth. In addition to these properties, the growth factor in pituitary function has some connection with calcium and protein balance within the body, the nature of which is not clearly understood.

The manifestations of thyroid activity are so manifold that many methods of assaying the strength of pituitary extracts are offered. The basal metabolic rate has been used for this purpose with striking results. The average rate of increase has been 30 per cent in normal hypophysectomized animals treated with anterior pituitary extract. In rats with goiter, however, increases as high as 150 per cent have been obtained, although the basal metabolic rate was normal before treatment. Increase in the weight of the thyroid gland and in the iodine content, and hyperplasia of the gland produced by the administration of pituitary extract, have all been used as assaying methods. Dr. Collip has attempted to correlate these different methods quantitatively and has found wide variations. These results again bring up the question of whether there are additional distinct hormones or whether the changes can be explained more logically by the side-action theory. The experiments of Marine and Rosen in which they were able to produce exophthalmos in thyroidectomized animals by administering pituitary hormones bring up the same problem. The basal metabolic rate may be increased by some pituitary extracts with no increase in the size of the thyroid gland, whereas other extracts may produce enlargement of the gland with no change in the metabolic rate. Dr. Collip believes that these apparent contradictions are based on the methods of preparation of the extracts. Complicated protein molecules may be broken down, liberating chemical side groups which may alter the physiologic action. Several other experiments tend to substantiate this theory. It has been shown that in thyroidectomized as well as in normal animals the basal metabolic rate continues to rise for 3 hours after anterior pituitary administration. Furthermore, the extract may be boiled in alkali at pH 10 without losing this property, while all of the five basic hormones are destroyed under these same conditions. Riddle produced an increase in metabolic rate by the injection of prolactin into thyroidectomized birds. These experiments show that the pituitary can act directly on body physiology and that it is not entirely dependent on the thyroid as a mediator.

The adrenotropic function of the pituitary has long been recognized. It produces an enlargement of the gland in both normal and hypophysectomized animals. After the removal of the pituitary gland in rats, the adrenals diminish in size, weighing 8 to 10 milligrams as compared with the normal weight of 25 milligrams. By using large doses of anterior pituitary extract, Dr. Collip has been able to increase their weight to 100 milligrams. The in-

crease in the size of the glands in normal animals is not reliable, for many circumstances, such as physical or chemical injury, may produce enlargement of the gland per se.

The bivalent gonadotropic function of the anterior pituitary has been so admirably explained by Houssay that it need hardly be mentioned. However, several phenomena produced by the use of anterior pituitary extracts cannot be aligned with the actions of the five basic hormones. They must, then, be caused either by separate specific hormones or by breakdown products. These phenomena are the diabetogenic, ketogenic and pancreotropic properties which are vaguely related to the growth hormone. Houssay has reported an increase in sugar output and the production of ketosis by the administration of anterior pituitary extract to animals from which both the pituitary and the pancreas have been removed. Dr. Collip has not been able to reproduce this ketosis. The experiments of Long have shown that the adrenal lies between the pituitary and the pancreas in the production of the diabetic picture. Pituitary extracts cause ketosis in animals from which only the pancreas has been removed, but they have no effect when both the adrenal and the pancreas have been resected. Therefore, the pituitary must in some way stimulate the adrenal to produce a ketogenic substance. To support this evidence, Dr. Collip has demonstrated a marked ketosis in hypophysectomized animals which previously have been treated with pituitary extract, with a resulting increase in the size of the adrenal glands.

Nelson and Burns claim that estrin fed without insulin to depancreatized dogs and monkeys will alleviate all diabetic symptoms. Since the monkey is so closely related to the human being, these results seemed to be of paramount significance. Dr. Collip attempted to reach the same conclusions. He was able to obtain the same experimental facts, but the controls he used likewise showed no diabetic symptoms, although they had received no estrin. The inborn ability of depancreatized monkeys to resist symptoms of ketosis even though the blood sugar remained high was the principal factor in their survival. Several monkeys lived for 5 or 6 months after the removal of the pancreas with no treatment whatsoever. Such data illustrate the fallacy of attempting to compare physiologic problems in different species.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, JUNE 28

Saturday, July 3—

*10 a. m. - 12 m. Staff rounds at the Peter Bent Brigham Hospital. Conducted by Dr. Henry A. Christian.

*Open to the medical profession.

July 6-11—Fifth International Congress of Hospitals. Page 37, issue of January 7.

September 13-17—Fifth International Congress of Radiology. Page 709, issue of April 22.

October 5-8—American Public Health Association meeting. New York City.

October 9—American Board of Ophthalmology, Chicago. Page 722, issue of April 22.

October 19, 20, 21—Academy of Physical Medicine. Page 723, issue of April 22.

October 25-29—American College of Surgeons. Chicago, Illinois.

November 1-12—1937 Graduate Fortnight of the New York Academy of Medicine. Page 1000, issue of June 3.

BOOK REVIEWS

Taylor's Practice of Medicine. E. P. Poulton, with the assistance of others. Fifteenth Edition. 1136 pp. Baltimore: William Wood & Company. $8.50.

This is an interesting book. Born in 1890, it still flourishes, and, like its eminent colleague, "Osler's Practice of Medicine," gives promise of living many years more before its usefulness is over.

Sir Frederic Taylor, the father of the book, was a very great man. It is a pity that he has not been more generally appreciated in this country. He was a fine type of Victorian physician, born in 1847, and spent his days in and around Guy's Hospital. He entered Guy's Hospital Medical School when he was sixteen years old, and retired from its staff at sixty. He was constantly in and out of the hospital; he served it and the medical school in various capacities—as demonstrator of anatomy, as medical registrar, as assistant physician, as dean of the medical school, and, finally, as full physician; indeed it was said of him that he had but two interests in life—clinical medicine and Guy's Hospital.

Sir William Osler and Sir Frederic Taylor must have known each other well for their lives had many common meeting points and their interests were much alike. Osler was born two years after Taylor, and they died within a year of one another—both saddened by the War and both losing sons in it. The first edition of Taylor's book appeared two years before the first edition of Osler's, and, hand in hand, for the ensuing half century, new editions of these two books written in English have been forthcoming as the occasion demanded—twelve editions of Osler against fifteen of Taylor.

Sir Frederic Taylor was a fine clinical teacher. Furthermore, as he reached maturity, it was generally admitted that he was a master diagnostician with a vast range of clinical experience derived from what he had observed in the hospital. When he was approaching forty years in age and with the feeling that he had enough knowledge from which to write, he assembled the first edition of his book, which, as has been stated, came off the press in 1890. Of it, our esteemed colleague, the *Lancet*, has said, "The book was written out of the fullness of personal knowledge and at once became the familiar friend of successive generations of medical students."

When Sir Frederic Taylor died, the book was kept alive by Dr. Poulton, and the latest edition of the "Practice of Medicine" is a fine tribute not only to Dr. Poulton's editorial skill but also to the affection

and respect which the original author inspired in his pupils. The book is well assembled and delightfully written, has good illustrations and exhibits throughout a sound point of view; it is comprehensive enough to include as part of general medicine not only neurology but dermatology as well, and, while polyandrous, yet so cleverly edited as still to seem written out of the fullness of one man's personal knowledge.

When the first edition made its appearance in this country, the *Journal of the American Medical Association* (17:315 [Aug. 22] 1891) reviewed it. What was said then is worth repeating: "This valuable practical work is well worthy of a place in the libraries of American practitioners. It deals concisely with the nature, course and treatment of diseases. Specific infectious diseases are very fully described, and the methods of treatment are judicious. By the reproduction of an English work upon medical practice, the publishers have conferred a benefit upon the medical profession."

Les Grands Problèmes de la Médecine Contemporaine. Pasteur Vallery-Radot. 252 pp. Paris: Ernest Flammarion, 1936. 12 fr. (French.)

Professor Pasteur Vallery-Radot, whose life of Pasteur has been so widely read by the medical profession, has brought together in a small book a few of his charming essays on men and events. Important are four biographies of modern French physicians who have done much to carry on the traditions of Pasteur in Paris: Emile Roux, Albert Calmette, Charles Nicolle and Fernand Widal. All these are finely written by an expert hand. In addition, this book contains a brief description of the first use of the Pasteur treatment for hydrophobia in 1885 and summaries of the conceptions of the day in regard to poliomyelitis, trypanosomiasis and malaria,—so important to the French in their colonization of northern Africa,—fever therapy and vaccination for diphtheria and tuberculosis. The last paper deals with the controversial B.C.G. vaccine of Calmette. This little book, written in French, will be read with pleasure, particularly for its historical studies.

Inhalation Anesthesia. A Fundamental Guide. Arthur E. Guedel. 172 pp. New York: The Macmillan Company, 1937. $2.50.

The author is an outstanding anesthetist who has exerted great influence on the development of anesthetic technic and thought during recent years. In the first chapter he deals with the physics and physiology of the transportation of gases in the body. He then presents a diagrammatic framework which serves ingeniously for the successive presentation of the stages of anesthesia and their signs; the levels at which various reflexes are abolished; the depths required for various operations; the power of the various anesthetics; the influence of the various factors that affect metabolism and reflex activity; and the effects of preliminary medication. Pertinent fundamental principles of pharmacology and of technic are presented, but many details of technic are perhaps wisely left to be taught in the operating room. The second part of the book deals with the many difficulties that may be encountered in administering anesthetics. Great emphasis is laid upon the need of avoiding even minor degrees of anoxemia and upon fatal ventricular fibrillation resulting from fright or physical stimulation during the delirium or "excitement" stage.

This brief valuable book should be read by every physician who may at some time administer anesthetics. Since it deals with inhalation anesthesia only, it could well be combined with a text on regional anesthesia such as that of Labat and with the recent series of articles in the *American Journal of Surgery* (December, 1936) to form a well-rounded course of instruction in present-day anesthesia.

A Woman Surgeon. An autobiography. Rosalie Slaughter Morton. 399 pp. New York: Frederick A. Stokes Company, 1937. $3.00.

This is an unusually interesting autobiography, which should be widely read by doctors, both male and female. Few women in medicine in America have made such a good record as Dr. Morton. She not only became a creditable surgeon, but also made a name for herself in social medicine. The organization of women doctors in this country, moreover, is largely her work. Following in the footsteps of Elizabeth Blackwell and Marie Zakrzewska and marching along with Maude Slye and Florence Sabin, Dr. Morton is one of the outstanding physicians in this country.

Her career is a most unusual one. Coming from a famous Virginia family with many distinguished physicians in it, she graduated from the Woman's College of Pennsylvania in 1897. While still an undergraduate, she spent a number of months at the Massachusetts State Hospital at Tewksbury, an institution which she describes with a clearness seldom surpassed in medical writing. Following her graduation she went abroad to study in Germany, particularly in Berlin. She met many of the important physicians of her day and seems to have had a wide acquaintance with people in general. Of particular interest is a description of Tolstoi, whom she met in Russia and with whom she had a long conversation. She later went to Paris and finally to England. On one of her vacations she met Ibsen at his home and gives a whole chapter to details of Ibsen's life and the great impression he made upon her. Subsequently she went to India to study bubonic plague; then came back to this country and set up practice in Washington and later in New York. Much impressed by the work of Dr. Grenfell, she went to Labrador in 1915 to assist him in his work. During the World War she spent much of her time in Serbia and after it, when she had returned to this country, she supervised the education of Serbian students in various universities in America. Finally,

after a long and eventful life, she retired to Florida, where she writes her autobiography.

A mere list of her accomplishments gives only a vague idea in regard to the author of this unusual book. She apparently met many people of importance in the medical world, as well as out of it. She draws brief but remarkably accurate portraits of these various individuals. Her descriptions of places are also well done, and particularly good is the long chapter on Serbia during the war. The reviewer knows of no other publication which gives such a clear view of soldiers on the march, under trying circumstances, and the wounded in hospitals during a vast retreat of an entire nation. This was, perhaps, Dr. Morton's greatest contribution, and her efforts on behalf of the Serbian people have been widely recognized. Only one feature mars this book for the serious student—there is no index.

Précis de Parasitologie. E. Brumpt. 2139 pp. 2 vols. Fifth Edition. Paris: Masson et Cie. 200 fr.

The new publication of this important and well-known work comes nine years after its fourth edition. The present book strikingly reflects the great amount of work done in parasitology during these years. It now consists of two volumes of over 1,000 pages each. The work is richly illustrated. Three hundred and thirty-eight new illustrations, of which 168 are original, have been added. Uniformity of illustrations is a conspicuous and pleasing feature throughout both volumes.

The general plan of the new edition has not been changed from that of previous editions. The first volume includes the introduction and general considerations and deals with the protozoa and the helminths. The second volume treats of the annelids and arthropods of medical importance and the fungi and fungous diseases. The spirochetes are included under the section of the protozoa. All species reported to date from man are listed together with pertinent data.

Marked revision occurs in the section on parasitic amebas, particularly in the chapter on amebic dysentery. Among the major changes is the addition of recent life-history studies which have completely changed our earlier conceptions of the development of the parasite. *Plasmodium ovale* Stephens, 1922, formerly regarded as a synonym of *P. vivax*, is now discussed as a distinct species occurring in man. The possibility of its being an incidental parasite of man is suggested. The intracellular parasites are described briefly in the first volume. The diseases they cause, their transmission prevention, and so forth, are discussed, in accordance with recent studies, in the section on medical entomology in volume 2.

Minor changes are noted throughout the chapters on the trematodes. To this section have been added the life-history studies on *Paragonimus kellicotti*, the North American long fluke, by Ameel. The number of new incidental trematodes for man is striking. Many of these are not of clinical importance, while others, species of the family Heterophyidae, now appear to be a frequent cause of acute vascular changes in the myocardium. *Schistosoma intercalatum* Fisher, 1934, is reviewed as a new parasite of man. Morphologically this parasite resembles both *S. haematobium* and *S. bovis*. It produces an intestinal form of schistosomiasis.

The section dealing with the cestodes remains practically unchanged except for a few additions necessitated by recent investigations. Among these is an account of the development of *Hymenolepis nana* in fleas and beetles.

Relatively few changes occur in the section on nematodes. The chapters on filariasis have been revised and enlarged to include the newer developments in this field.

Extensive alterations have been made in the section on medical entomology. All sections have been greatly enlarged, are richly illustrated and appear to present most of the more recent work on the biology of ticks, lice and mosquitoes and the diseases transmitted by them. Mention is not made of jungle yellow fever—yellow fever in the absence of the usual insect vector.

The second half of volume 2 is devoted to mycology. This section has been enlarged to about twice its former size and now covers approximately 500 pages. Marked revision and addition of new material are conspicuous in every part.

Without question, Brumpt's "Précis de Parasitologie" is the most modern, complete and comprehensive treatise on the subject, and it will continue, as in the past, to be an invaluable book of reference for the parasitologist and physician and a stimulating text for the student.

Christian R. Holmes, Man and Physician. Martin Fischer. 233 pp. Springfield and Baltimore: Charles C Thomas, 1937.

This elaborate biography of the founder of the great Cincinnati Hospital and co-ordinator of medical teaching in the same city reports the trials in the life of an immigrant Dane, born in 1857, who came to America in 1872. He supported his family by working as a draughtsman, the only trade he knew, and later, working his way through medical school, lived to see his adopted city, Cincinnati, furnished with a first-class hospital with adequate provision for the training of physicians and nurses. Finally came service for himself and his two sons in the World War, before he died in 1920. It was all a hard fight, fought by a rugged man against corrupt city politicians and unsympathetic neighbors. Cincinnati may well be proud of a distinguished citizen who did so much for her. His early work in ophthalmology and otology, moreover, should not be forgotten. In spite of the difficult style of the author, many physicians, particularly those who build and administer hospitals, will be interested in reading of Holmes's achievements.